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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

APRIL, 1955

Streams operate without attendants as safety measure at Philadelphia fire
(Article on page 316)

A CASE - SHEPPERD - MANN PUBLICATION

is Your Community protected

by the MOST EFFECTIVE resuscitating apparatus known to science ?

EMERSON Resuscitators

SIMPLE to operate, with no complicated adjustments.

SAFE for adults, children, or infants. There is no record of lung injury from the pressures used in thousands of cases in more than ten years.

EFFECTIVE The suction phase, alternating with the positive phase, helps circulation and can be of life-and-death importance, especially to victims in shock.

ACCEPTED by the American Medical Association for use by laymen (A.M.A. Journal, May 30, 1942). Relied on from coast to coast by thousands of leading hospitals and fire departments.

Write for our free

Medical Reference on Resuscitation

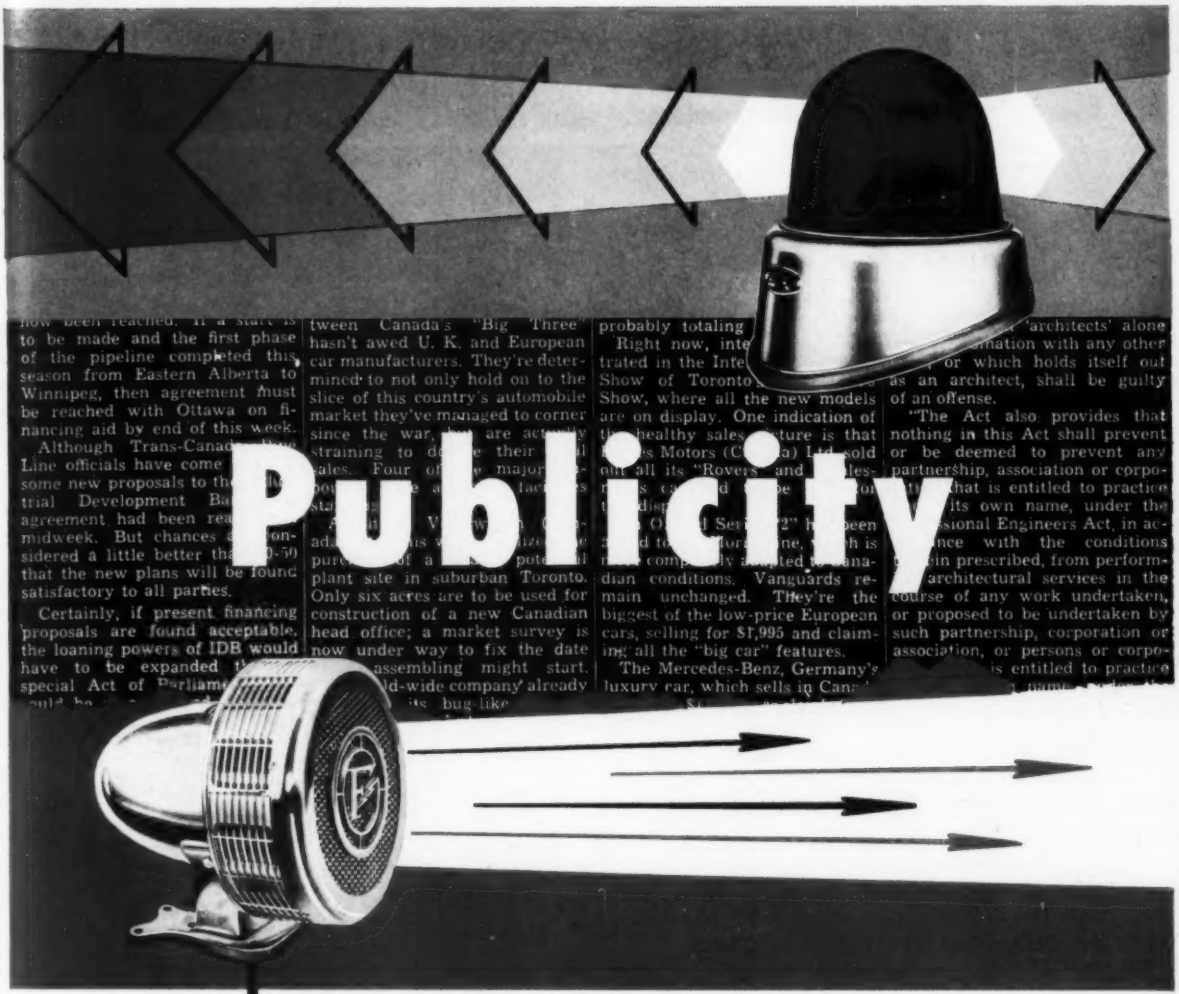
Information and Demonstration

Bulletin on a New Manual Method of Artificial Respiration

"Simplest and Safest"

J. H. EMERSON COMPANY

83 COTTAGE PARK AVENUE, CAMBRIDGE 40, MASSACHUSETTS



Fire Departments, a public service, seldom have the favorable services of a publicity director but are often the victims of public criticism.

The very best good will builder a Fire Department can have is quick response to an alarm. The distinctive sound of the equipment's siren is the herald of an alert and ready department. Often it is its sole contact with the public.

The distinctive tone of a FEDERAL Q, C or 70 Siren tells the public that their boys are on their toes. What's more, this sound teamed with the brilliant flash of the Model 17 FEDERAL BEACON RAY light gets them to fires more quickly and with greater safety. Even enviable records of response can be improved; don't suffer from inadequate and obsolete warning signals. Equip your present apparatus with FEDERAL COASTER SIRENS and FEDERAL BEACON RAY lights and specify them on all new equipment. Write for literature today!

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FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

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MEMBER
Audit Bureau of Circulations
Associated Business Publications

The Open Mind

FEW men succeed in business or profession who do not keep an open mind for progress and improvement.

● The firefighter who is blind to progress, whether in the science of fire control or administration of a fire department, handicaps not only himself, but he endangers the department he represents and the community he serves.

● There were those who warned against the steam fire engine; those who could see no good in the gasoline-driven pumping machine. There were—and are, those who rail at short-wave radio; who scoff at masks and breathing apparatus. There are those also, who can see no good in such things as water fog and fog foam, and who sniff at "wet water."

● Every improvement in this big and growing business of fire protection has run into its "closed minds." But fortunately, the fire service has made progress in spite of the skeptics. The simple fact is the vast majority of firefighters are eager for improvement. They seek it, welcome it. Many of them tell us they become acquainted with it in FIRE ENGINEERING.

● That's what FIRE ENGINEERING is for —among other things: to chronicle progress; to not only *"report"* new products, plans and policies, but to *encourage* them.

● FIRE ENGINEERING is edited with an open mind—for firefighters and other authorities vitally concerned with fire safety, who likewise view progress with an open mind.

The Publishers

FIRE ENGINEERING

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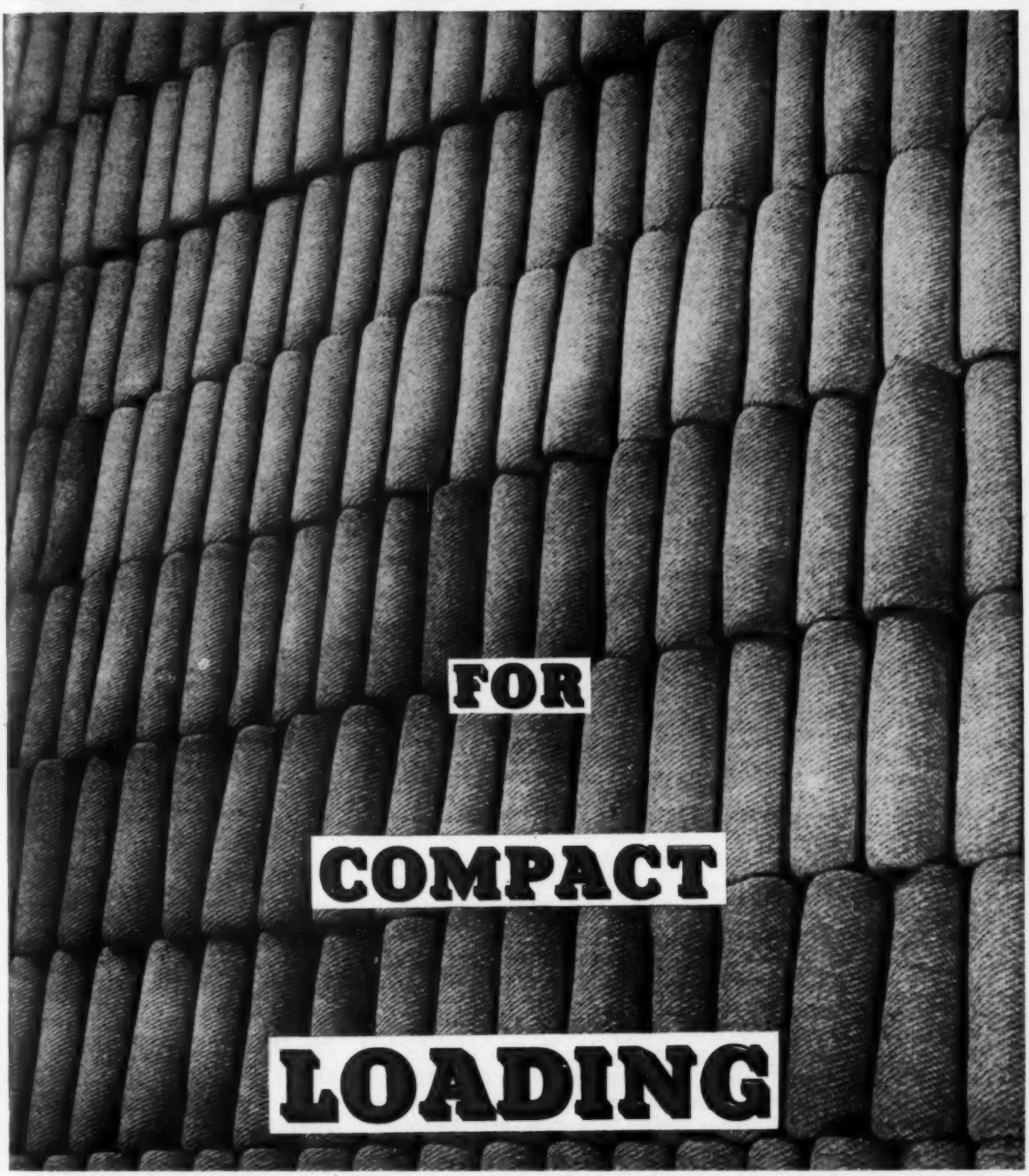

FABRIC FIRE HOSE COMPANY

THE ONLY EXCLUSIVE MANUFACTURER OF FIRE HOSE IN AMERICA

SANDY HOOK CONNECTICUT

IN CANADA BICKLE-SEAGRAVE, LTD. WOODSTOCK, ONTARIO

NEW JOHN BEAN High-Pressure Sno-Foam blankets a fire at 70 feet

Note (above) the heavy adhesive fire smothering blanket of Sno-Foam laid down and (below) the extensive area covered by the firemen applying another John Bean fire fighting first — High-Pressure Sno-Foam.

Now, the original John Bean high-pressure fog fire fighter, with the built-in Sno-Foam system, offers all the advantages of high-pressure fog plus a blizzard of foam that knocks out the hottest fires faster than ever before possible. Your firemen are safe from the heat of raging chemical, paint, gasoline or petroleum fires as a smothering blanket of completely aerated foam can be laid down from distances of 70 feet or more. Sno-Foam can be applied quickly and easily. Aerator adapters slip on the high-pressure fog guns and a turn of a valve delivers Sno-Foam in seconds. Up to 5,000 gallons of foam can be applied from the water and solution carried on a standard truck. A dependable foam metering valve assures correct consistency, using either high or low expansion foam. More than ever before, John Bean apparatus is the fireman's fire fighter.

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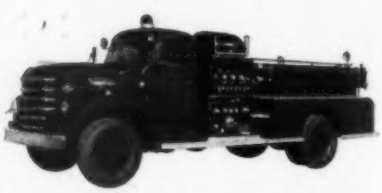

John BEAN (1) HIGH PRESSURE FOG plus (2) VOLUME plus (3) "sno-foam" — all 3 in a single John Bean Fire Fighter.

Write today for complete details on this triple combination of proven fire fighting weapons.

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ORIGINAL HIGH-PRESSURE FOG FIRE-FIGHTER

John Bean Division, Dept. 126, Lansing 4, Michigan
John Bean Division, P. O. Box 145, San Jose, California

Can be mounted on most standard truck chassis.

A PRODUCT OF FOOD MACHINERY AND CHEMICAL CORPORATION

B. F. Goodrich announces

New treatment makes fire hose 10 times more resistant to mildew and rotting

MILDEW is a hose killer. It thrives on water soaked fire hose jackets, causes weak spots that burst under pressure.

Now B. F. Goodrich engineers, who were first to make fire hose light and flexible, have come up with a new chemical treatment—called Superseal—that gives maximum protection against mildew, rotting, moisture absorption and freezing.

The new treatment is not just a surface application. The chemical solution penetrates and protects every cord in both the inner and outer jackets, prepares the hose for all sorts of weather. And, unlike ordinary treatments, the B. F. Goodrich process actually *increases* the adhesion between jacket and tube. What's more, you get added safety because the chemical makes B. F. Goodrich hose more flame-resistant.

Tests show that hose treated by this new B. F. Goodrich method has 10 times better mildew resistance than other treated hose. To prove this, three lengths of hose were buried in a plot of ground that had been infested with mildew spores, maggots and microbes. After 8 weeks, the untreated hose was reduced to powder. The hose treated the old way wasn't much better. But the B. F. Goodrich treated hose looked good as new, still had 96% of its original strength.

There's a B. F. Goodrich fire hose distributor near you, ready to bring this and other B. F. Goodrich hose improvements to your department. Give him a call or write *The B. F. Goodrich Company, Dept.* M-405, *Akron 18, Ohio.*

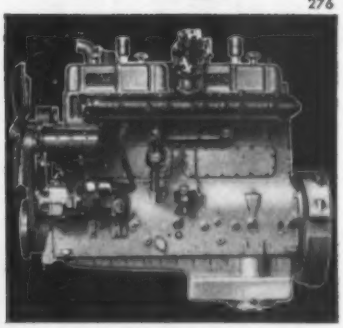
B.F. Goodrich
INDUSTRIAL PRODUCTS DIVISION

NEW YORK CITY buys 25 FWD AERIAL LADDER FIRE TRUCKS . . . all powered with Model 145-GK

Twenty-five—FWD three-man, open cab type, powered by 145-GK Waukesha Engines—built to specifications of the New York City Fire Department—said to be the largest order of ladder trucks ever received by any one company is being delivered by The Four Wheel Drive Auto Company, Clintonville, Wis.

WAUKESHA FIRE FIGHTER ENGINES

276



Typical 145-Series FIRE FIGHTER . . . The 145-GK models are 5¼-in. bore x 6-in. stroke, 779 cu. in. displ. The 145-GZ Models are 5⅜ x 6-in., 817 cu. in. Available with counterbalanced or non-counterbalanced crankshafts. Send for bulletins.

WAUKESHA MOTOR COMPANY
WAUKESHA, WISCONSIN
NEW YORK • TULSA • LOS ANGELES

WAUKESHA 145-SERIES *FIRE-FIGHTER* ENGINES

Cylinder Heads—Twin castings, interchangeable. Valves and two spark plugs per cylinder in head.

Crankcase—Crankcase and cylinder frame in one unit. Heavy top and bottom diaphragms with baffles and ribs direct coolant.

Cylinders—Removable, wet-type sleeves of Waukesha special alloy close-grained iron. Honed finish.

Pistons—Aluminum alloy, heavily ribbed. Full-floating piston pins.

Rings—Four rings above the bearing bosses. Two compression, one compressor-scraper, and one oil control ring. Top ring chrome plated. Surfaces flat and parallel. Fifth ring, an oil control ring, is at bottom of piston.

Crankshaft—Forged steel. Seven 3¼-in. main bearings, and thick cheeks. Statically and dynamically balanced. Counterbalanced when specified.

Connecting Rods—Drop-forged, heat-treated steel. Large end ground for replaceable precision high capacity bushings. Rods matched to ¼ ounce. Pressure oiling to large and small end bearings.

Camshaft—Solid steel forging, case hardened, precision ground cams and bearings. Oil pump drive gear integral with shaft.

Main Bearings—Replaceable precision-type, extra high capacity. Deep caps held by ¾-inch heat-treated cap screws and locks. Exceptionally long center bearings.

Valves—In cylinder head. Special alloy steel intake and exhaust. Stellite-faced exhaust valves and exhaust valve inserts. Valve guides pressed in place.

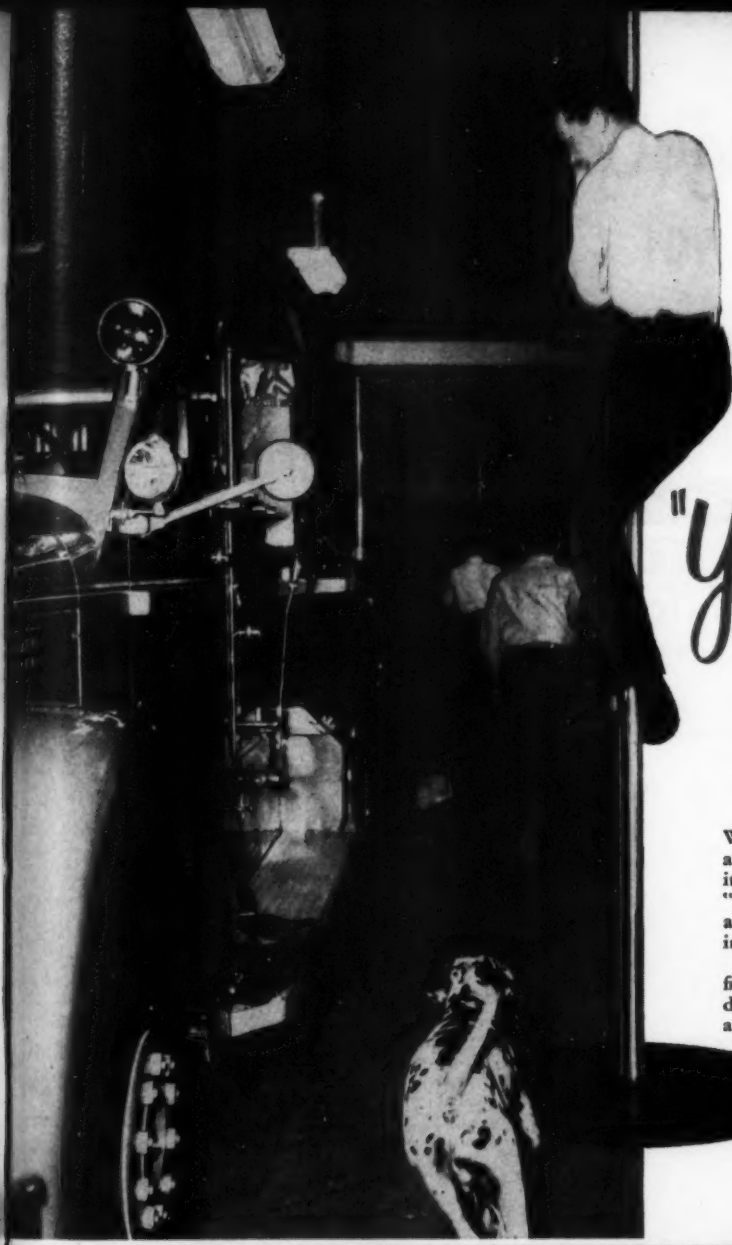
Valve Adjustment—Screw and lock-nut on rocker arms. Mushroom tappets flood oiled. Rocker oiling controlled for intermittent pressure feed.

Timing Gears—Helical-cut gears of mild steel. Fully enclosed and flood oiled.

Cooling—High-duty pump delivers large volume in directed paths. Large, clear passages surround valve seats. Thermostat by-pass.

Lubrication—Full-pressure oiling by positive gear-type pump. Large drilled passages to each main, camshaft, connecting rod, piston pin, rocker arm, oil pump drive shaft bearing, and to idler gear stud and gears. Valve mechanism and cylinder walls drenched by oil mist. Oil inlet strainer and oil level equalizer prevents air-bound lines and insures lubrication at all oil levels and temperatures. Outside pressure adjustment.

Other Components, Accessories—Arranged for special services as specified with order.



This Movie available NOW for Showing to your Department

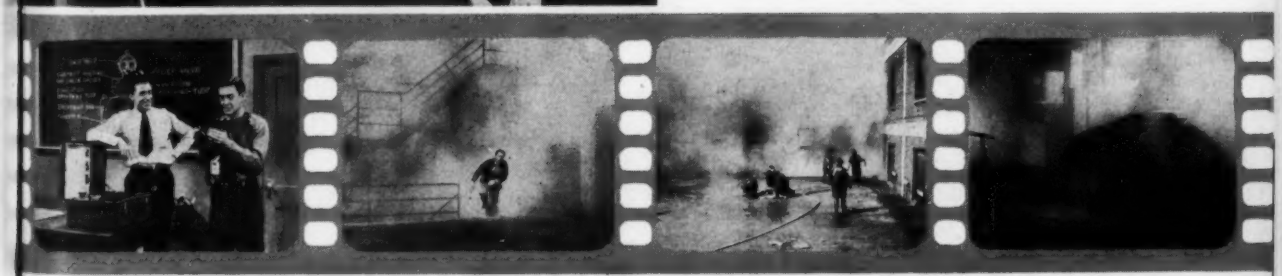
"You Bet Your Life"

. . . an educational sound motion picture about a "Smoke Eater" who found out too late he was wrong

When the boys at the station house started talking about respiratory protection, "Chop Happy" classed it as "kid's stuff" and refused to listen. He was a "Smoke Eater" and that's all there was to it. His story, and how he bet his life and lost, is dramatically told in this fast-moving, authentic sound motion picture.

Professionally produced, "You Bet Your Life" is filled with action-packed scenes, attention-holding discussions on the harmful effects of smoke, gases, and vapors, and educational demonstrations of fire-fighting masks and their uses . . . ideal material for training classes and refresher instruction for veterans.

This 16 mm., sound film is non-commercial. Plan now for a free showing to your department. You'll find it a profitable way to spend the 25 minutes it takes for a showing. Clip coupon at bottom of ad and mail today!



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Call the M.S.A. man on your every safety problem . . . his job is to help you.

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Mine Safety Appliances Co.
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Please arrange to send the film—"You Bet Your Life" for showing about

_____(date)

Name_____

Title_____

Company_____

Address_____

for lighter weight and GREATER STRENGTH

SPECIFY

REPUBLIC'S DACRON FILLER

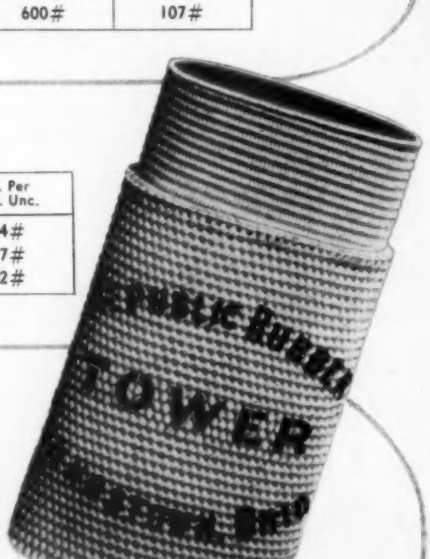
MUNICIPAL FIRE HOSE

Champion 600# Test Pressure

Size	O.D.	Test Pressure	Wt. Per C Ft. Unc.
1½"	2 "	600#	45#
2½"	3 1/16"	600#	79#
3 "	3 5/8"	600#	107#

Tower 400# Test Pressure

Size	O.D.	Test Pressure	Wt. Per C Ft. Unc.
1½"	1 31/32"	400#	44#
2½"	3 1/16"	400#	77#
3 "	3 13/32"	400#	102#



In addition to these Dacron Filler types, Republic makes two Cotton Filler, Double Jacket types: K-122 Chariot and K-127 Target, both for 400# Test Pressure.

Republic Municipal Fire Hose is Provar Processed as standard construction for mildew prevention and is flat-cured, permitting easy handling and storage of more footage. Send us your order or request for quotation.

"Quality Hose Builders for Over 50 Years"

REPUBLIC RUBBER DIVISION

LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN 1, OHIO

INDUSTRIAL RUBBER PRODUCTS

When you're shooting for the best...choose INDIAN FIRE PUMPS!

For many years our constant aim has been to make **INDIAN FIRE PUMPS** the most efficient and long lasting back pack fire fighters.

We have continually improved **INDIAN FIRE PUMPS** until today they are acknowledged by fire fighting authorities as being unsurpassed for all Class "A" and many Class "B" fires... including small oil fires.

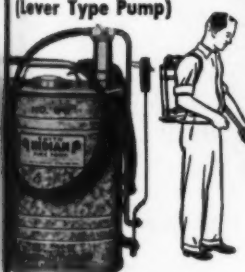
The Smith No. 147 adjustable nozzle produces a fine or course spray, 20 to 30 ft. straight stream and a powerful fog mist.

INDIAN FIRE PUMPS are approved by Underwriters' Laboratories. They are ruggedly built and many pumps are still in use after 20 years or more of hard service.

The **INDIAN** is available in the lever type, known as our No. 80 INDIAN.

INDIAN FIRE PUMP NO. 80

(Lever Type Pump)



Same size as No. 90 INDIAN Sliding Pump type. 5 gal. tank available in Armco zinc grip steel or solid copper. High pressure. Continuous action. Working pump handle slowly throws powerful stream or fog spray as desired.

CATALOG ON REQUEST!

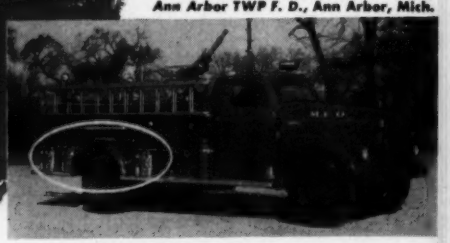
Established 1888

SEND FOR CATALOG DESCRIBING **INDIAN FIRE PUMPS** and containing many testimonials. They are "choice for quality the world over."

"Nothing Else Like INDIANS"

"We have 6 of your **INDIAN FIRE PUMPS** on one of our fire trucks and we have used them 8 years. They are still *just like new*. They are the best things a county fire department can have. I have used them for everything, including grass, house, barn and many other kinds of fires. We like them very much. There is nothing else like them."

EARL L. KOCH, *Assistant Chief*
Ann Arbor TWP F. D., Ann Arbor, Mich.



Fire Truck built by W. S. Darley & Co., Chicago, Ill delivered to Manila Fire Dept., Republic of the Philippines. Note **INDIAN FIRE PUMPS** mounted.

D. B. SMITH & CO. 406 MAIN ST. UTICA 2, N. Y.

Hercules Equipment & Rubber Company, Inc. San Francisco 7, Calif.
Halprin Supply Co. Los Angeles 15, Calif.

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ELECTRIC POWER

DELCO-REMY ThunderVolt A.C. GENERATORS FOR EXTRA-HEAVY ELECTRICAL LOADS

Delco-Remy's new ThunderVolt-12 A.C.-D.C. charging systems are the answer to the *extra-heavy* electrical demands of late-model fire engines, police prowl cars, and other vehicles equipped with two-way radio, floodlights, or other special electrical units. High wattage output is ample for heaviest electrical loads . . . generators pick up discharged batteries quickly in emergencies. Delco-Remy A.C.-D.C. charging systems are unexcelled at curb-idle . . . furnish up to 180 amperes at higher engine speeds . . . are dependable under the most rugged operating conditions at all engine speeds.

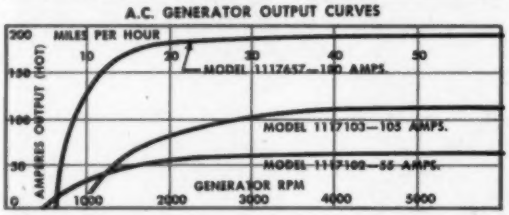
ThunderVolt 6 and 12 application packages, complete with installation instruction sheets for popular makes of cars and trucks, are available. Conversion is simple. See your nearest United Motors distributor for additional information.

A.C. GENERATOR PERFORMANCE DATA

Model	Volts	Cut-In RPM*	Curb Idle Amperes*	Maximum Amperes	Power Watts	Recommended For
1117102	12	600	30-40	55	660	All speeds.
1117103	12	975	6	105	1260	All speeds.
1117657	12	625	100	180	2160	All speeds.
1117062-3-4	6	750	30-40	90	540	All speeds.

*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

A.C. GENERATOR OUTPUT CURVES



DELCO-REMY ThunderVolt D.C. GENERATORS FOR MEDIUM-TO-HEAVY ELECTRICAL LOADS

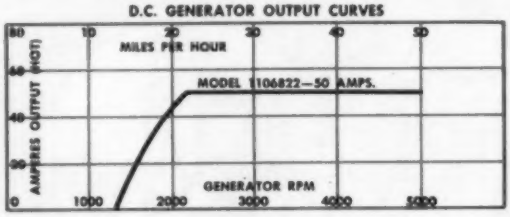
Delco-Remy's ThunderVolt-12 extra-output D.C. generator is an economical answer to the electrical needs of late-model fire engines, suburban police cars, rural mail cars . . . other vehicles with additional lights, two-way radios, or other special electrical equipment in medium- to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain. Performance data on a typical Delco-Remy ThunderVolt-12 D.C. generator is shown at the right. For further details and application data, see your nearest United Motors distributor.

D.C. GENERATOR PERFORMANCE DATA

Model	Volts	Cut-In RPM*	Curb Idle Amperes*	Maximum Amperes	Power Watts	Recommended For
1106822	12	1300	0	50	600	Medium to High speeds.

*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

D.C. GENERATOR OUTPUT CURVES

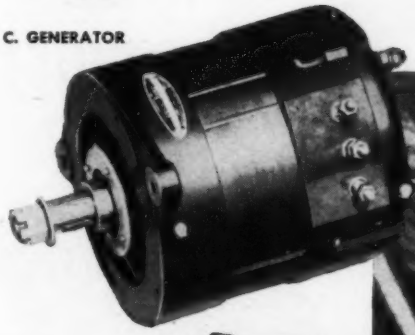


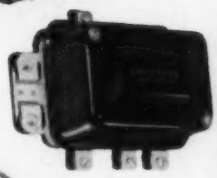
Delco-Remy
ThunderVolt
ELECTRICAL SYSTEMS

DELCO-REMY • DIVISION OF GENERAL MOTORS • ANDERSON, INDIANA

right for the job

A. C. GENERATOR





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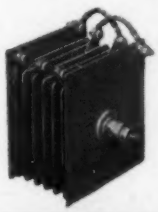

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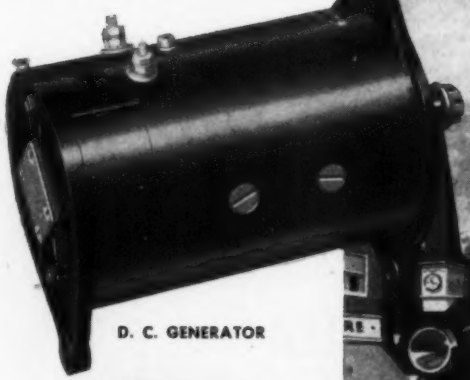
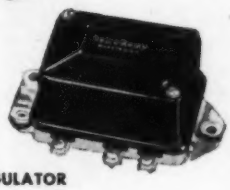


D. C. GENERATOR



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MIDWESTERN

Safety Clothing for FIREMEN

The Original

STRIPED SAFETY COAT

- Greater Visibility
- Exclusive Fabric Material
- Exclusive Safety Features
- Superior Design

The striped safety coat for firemen is an *original* MIDWESTERN development . . . featuring highly visible yellow stripes which are *rubberized as part of the material* . . . not painted, glued or sewed on!

Service records prove that Midwestern Striped Safety Coats withstand years of rugged duty . . . offer high safety visibility during the entire life of the garment. Designed exclusively for firemen . . . every detail in construction adds to the service, comfort, protection and long wear of the garment.

As an accident prevention measure, more and more fire departments are specifying Midwestern Striped Safety Coats as standard equipment. There are many imitations but *no substitute* for the workmanship, built-in comfort and longer wear you receive by specifying MIDWESTERN.

MIDWESTERN COMBINATION SAFETY SUIT

The Midwestern Safety Coat and Bunker Pants combination is preferred by many larger municipal departments. Detachable wool linings. Close fitting collar and elastic inner sleeve on coat keep out sparks and water. Pants have double-stitched seams, reinforcing rivets at points of strain, large, roomy pocket space.

QUALITY UNEXCELLED

In our vast selection of materials you will find the type of fabric exactly suited to your climate and needs. For complete information, have your Midwestern dealer show you our complete line. A letter to the factory will also bring you literature and material samples for your inspection.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN SAFETY MFG. CO. Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Safety Coats**

When Seconds Count!...

Count on

DUO Safety

FIRE LADDERS

PHOTO BY
PHILA. FIRE DEPT

DUO-SAFETY SERIES 500A TUBULAR RAIL

Here's the proof, in action, of the superior quality, safety and dependability of the famous Duo-Safety line of aluminum fire ladders. The ladder in the above photograph, playing such an important part in the rescue of an unconscious victim, is the Duo-Safety 500 Series Tubular Rail Model. Note how straight and sturdy the rails remain, even under extreme weight. Note, too, that the absence of any projections or sharp, jagged edges provides a smooth rail surface to permit sliding the victim down safely and rapidly. Yes . . . you can count on all ladders in the great Duo-Safety line for the kind of performance that only highest quality delivers. Write today for free, colorful file catalog giving complete information.

DUO-SAFETY LADDER CORP.

809 NINTH STREET, OSHKOSH, WIS.

Reduce The Fight In Fire Fighting With This Light Dacron Hose

Answering fire alarms is hard work and every man's strength must be saved to help combat danger on the job. Strength-sapping lugging of heavy fire hose is done away with when Dacron hose is used.

In spite of its light weight and easy flexibility which makes it so easy to handle, this hose is actually stronger than conventional hose, and withstands 50% greater pressure. It also resists damage by heat, chemicals, water absorption, mildew and abrasion.

Non-porous rubber tube with jackets of highest grade cotton warp thread, combined with filler thread of super-strong, quick drying Dacron, give this hose its remarkable qualities.

Its unique construction makes it easier to coil and it takes up less truck-bed space.

Our Delaware-Victor brand is rated for 600 pounds and our Bond-Battleship brand for 400 pounds. Both are factory tested under severe hydrostatic pressures far more rugged than the most severe use they would get in action.

We also manufacture a complete line of water and chemical fire hose for every municipal and industrial requirement. *Write for free folder and name of nearest distributor.*

QUAKER RUBBER CORPORATION
Philadelphia 24, Pennsylvania

HKP

QUAKER PIONEER RUBBER MILLS
San Francisco 7, California

NIF-15 INDUSTRIAL FOG NOZZLE

Versatile - Easy to Operate - Low In Cost

A low cost fog nozzle specially designed for fire-fighting equipment of industrial plants and commercial firms. Water flow can be quickly changed from straight stream . . . to fog . . . to shut-off with a flick of the wrist.

Cuts down on water damage, furnishes a protective curtain of water for quicker approach and put-out. Provides widest fog range . . . from 0 to 150 degrees. Base has rocker lugs for easy, tight attachment. For 1½" hose lines. Smooth sand cast finish. Made to precision specifications.

TWO IMPORTANT NEW FOG NOZZLES BY WOOSTER BRASS

NHR-15 FOG NOZZLE FOR HOSE RACKS

Fills the need for an inexpensive, easy-to-operate nozzle for use on hose racks. Provides the same fire-fighting versatility found in the NIF-15, with a choice of straight stream and a wide range of fog patterns. Reduced in size below discharge flange to accommodate most rack nozzle brackets. For 1½" hose lines. Regularly furnished in satin finish but available in polished brass or chrome plate on request.

For complete information, contact your Wooster Brass Representative or write direct.

WOOSTER BRASS
DIVISION
THE FYR-FYTER CO. • WOOSTER, OHIO

DRAGON NO. 150 PORTABLE BACK-PACK FIRE PUMP

An all around Pump for all around use - - - Complete in one Unit

For

Forestry Departments
Fire Companies
Industrial Areas
Property Owners
Weed Control
Air Fields
Shipyards
Schools
Farms
Camps

DRAGON FIRE PUMPS meet the requirements of the Underwriters' Laboratories, Inc., and can be supplied with their label of inspection attached. Specify DRAGONS on Your New Fire Trucks.

MORE WORK CAN BE DONE WITH LESS EFFORT WITH A DRAGON FIRE PUMP

MANY DESIRABLE ADVANTAGES

The operator can accurately aim a spray or stream because he leisurely pumps with one hand and holds and operates the nozzle with the other. As long as there is a supply he can play a *continuous* stream exactly where it is wanted. No precious water is wasted!

Whenever desirable the operator may let the pump lever or nozzle "go," permitting free use of his hands to use other tools, rakes, brooms, shovels, etc. Pressure is not lost, he is ready to direct the stream again the moment he releases the nozzle trigger.

By simply revolving the nozzle tip, a large volume fog spray may be obtained, which is most desirable for outdoor as well as indoor fires. Or the nozzle can be instantly adjusted to discharge a coarse spray for a considerable distance. A straight stream will carry for a distance of 35 feet minimum.

Dragon Fire Pumps are compact and complete machines. They can be transported and stored in close quarters for long periods of time. They will always be ready for use, as there are no packings to dry out that may cause critical failures.

Dragon Fire Pumps were designed for the operator —no detail has been omitted or eliminated, no matter how costly, if it would improve the efficiency or operation of a Dragon Fire Pump.

SPECIFICATIONS

No. 150-S Stainless Steel Tank
No. 150-G Galvanized Tank (Cold Rolled Steel-Hot Dipped Galvanized after Fabrication)
All units equipped w/ brass pumps
Capacity of Tank 5 Gallons

Valuable Distributorships available, write for details

PARCO PRODUCTS COMPANY

PENNSBURG, PA.

MACK MANUFACTURING CORPORATION
TRIPLE COMBINATION PUMPERS—500 TO 1250 GPM . . . SQUAD AND HOSE WAGONS . . . 65', 75' AND 85' AERIALS . . . COMBINATION LADDER TRUCKS
3634

Milwaukee puts into service this Mack Type 85 tractor-drawn 85-ft. aerial. Special rear wheel sanders. Powered by famous Mack 707 Thermodyne® engine and equipped with the smoothest and safest aerial ladder in use today. It's the thirteenth Mack delivered to Milwaukee in recent years.

Milwaukee gets modern aerial ladder maneuverability meeting modern municipal conditions

Modern municipal street and traffic conditions call for fire apparatus that's designed throughout for utmost maneuverability. The Mack Type 85 six-wheel tractor-drawn 85′ aerial ladder is an outstanding example.

Product of the industry's most experienced manufacturer of quality tractors, this Mack has been described as the sweetest-handling tractor-drawn aerial going. Compact design . . . sure-footed balance . . . high power-to-weight ratio—all contribute to the remarkable performance of this unit.

Whether your need is for six or four wheel aerials, pumpers, squad cars or combination ladder trucks, there's a Mack that will best serve you. Before ordering any apparatus, be sure to call in Mack.

MACK MANUFACTURING CORPORATION Empire State Bldg., New York 1, N. Y.

TRIPLE COMBINATION PUMPERS—500 TO 1250 GPM . . . SQUAD AND HOSE WAGONS . . . 65′, 75′ AND 85′ AERIALS . . . COMBINATION LADDER TRUCKS

3034

SQUEEZES PAST OBSTRUCTIONS

E & J RESUSCITATOR - INHALATOR - ASPIRATOR

E&J RESUSCITATOR • ASPIRATOR • INHALATOR

. . . first name in Resuscitators

ACCEPTED COUNCIL ON PHYSICAL MEDICINE and REHABILITATION AMERICAN MEDICAL ASSOCIATION

When partial obstructions will not yield to aspiration, or when the air passages are swollen almost shut, the exclusive E & J feature "Precision Flow Control" assumes life-saving importance in emergency rescue treatment.
With it the operator can quickly find just the exact flow of oxygen that will squeeze past obstructions short of complete blockage to provide full inhalation and exhalation *at a slow but life-saving rate!*

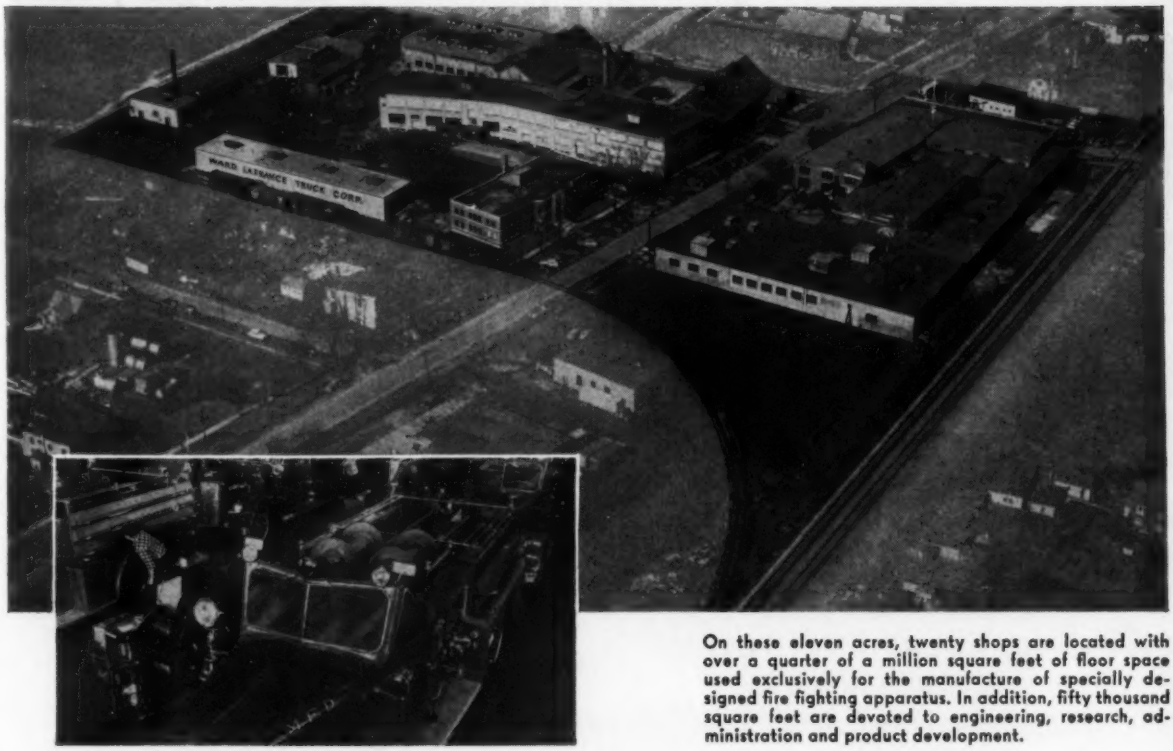
FIND OUT MORE ABOUT THIS VITAL E & J FEATURE . . .
Data and demonstration without obligation.
Write to Dept. 544-7 at address below.

E&J

E&J MANUFACTURING COMPANY

100 E. Graham Place, Burbank, California

FROM THIS PLANT . . .



On these eleven acres, twenty shops are located with over a quarter of a million square feet of floor space used exclusively for the manufacture of specially designed fire fighting apparatus. In addition, fifty thousand square feet are devoted to engineering, research, administration and product development.

comes America's finest fire-fighting apparatus

Cities across the country depend upon Ward LaFrance equipment for defense against fire. Ward LaFrance apparatus is a familiar sight in large cities like New York, Buffalo, Boston, St. Paul, Rochester, Peoria, Minneapolis . . . as well as in hundreds of small communities. Wherever there's a need for dependable, efficient, modern fire-fighting equipment, you'll find Ward LaFrance at work.

Ward LaFrance equipment is engineered and designed to individual fire department requirements. The fire truck chassis are built to rigid specifications in our own shops. They are powered with engines up to 275 horsepower . . . furnished with pumps that discharge up to 1500 gallons per minute.

Communities are proud of Ward LaFrance equipment. And they have every right to be. Ruggedly designed to operate without failures under the most severe fire-fighting conditions, Ward LaFrance apparatus is colorful, painted to order, artistically striped . . . generously chromed for beauty.

WARD LaFRANCE

PUMPERS • AERIAL LADDERS
HOSE TRUCKS • LADDER TRUCKS
FLOODLIGHT AND RESCUE TRUCKS
SQUAD TRUCKS

WARD LaFRANCE
TRUCK CORPORATION
Fire Apparatus Manufacturers for over 37 Years.

GENERAL OFFICE & FACTORY: Grand Central Avenue, Elmira, N.Y. Tel. 3-5631

DIRECT FACTORY BRANCH: 139th Street and Bruckner Blvd., New York 54, New York. Tel. CYpress 2-3300

EXPORT: Ward LaFrance International, Inc. Elmira, N.Y., U.S.A. Cable Address: "WARDTRUCK"

Year after year, the high immunity from fire and burglary losses in ADT-protected properties attests the exceptional effectiveness and dependability of ADT Central Station Electric Protection Services

1954 ADT PERFORMANCE

SPRINKLER SUPERVISORY AND WATERFLOW ALARM SERVICE

Supervisory signals, indicating conditions causing temporary impairment of sprinkler systems.....198,564
Waterflow alarms, caused by fires or serious leaks.....2,994
Manual fire alarms.....115
Reported values of properties protected.....$15,876,633,000
Ratio of losses to values protected.....2/100ths of 1%
Fire-loss immunity in 1954.....99-98/100ths %

AVERAGE FIRE-LOSS IMMUNITY DURING THE PAST TEN YEARS 99 98/100 %

BURGLAR AND HOLDUP ALARM SERVICES

Attacks on ADT Protection.....2,594
Entrances effected.....1,531
Captures as result of burglar, holdup, other emergency alarms....1,013
Reported values of properties protected.....$4,942,355,000*
Ratio of losses to values protected.....2/100ths of 1%
Burglary-loss immunity in 1954.....99-98/100ths %

*Not including ADT-protected values in bank vaults, the U.S. Treasury, Federal Reserve Banks and branches, the U.S. Mints and the U.S. Bullion Depositories at Fort Knox, Ky., and West Point, N. Y.

AVERAGE BURGLARY-LOSS IMMUNITY DURING THE PAST TEN YEARS 99 99/100 %

WATCHMAN'S REPORTING AND MANUAL FIRE ALARM SERVICE

Investigations of failures of watchmen to signal Central Station on schedule.....206,875
Total number of signals recorded.....314,502,496
Watchmen's patrol efficiency.....99-93/100ths %
Alarms from Manual Fire Alarm Boxes.....1,362
Reported values of properties protected.....$18,907,278,000
Ratio of fire losses to values protected.....2/100ths of 1%
Fire-loss immunity in 1954.....99-98/100ths %

AVERAGE FIRE-LOSS IMMUNITY DURING THE PAST TEN YEARS 99 96/100 %

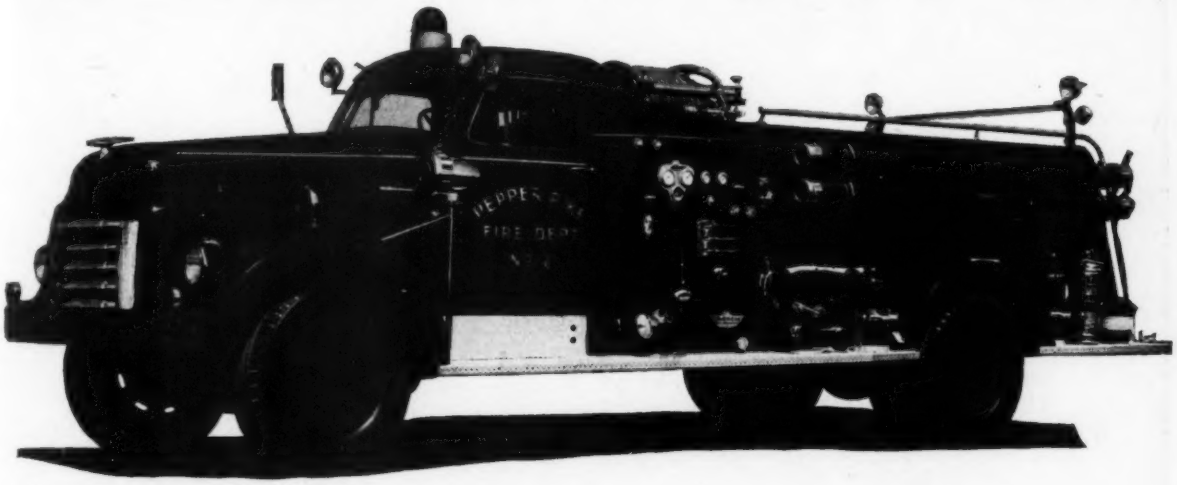
This remarkable record reflects the value of continuous supervision and proper maintenance of protective signaling systems, as provided by ADT Services. For complete information, call our local sales office if we are listed in your phone book, or write to our Executive Offices.

ADT
Controlled Companies of
AMERICAN DISTRICT TELEGRAPH COMPANY
A NATIONWIDE ORGANIZATION
Executive Offices
155 Sixth Ave. New York 13, N. Y.

American FIRE ENGINES OFFER YOU

MORE BIG FEATURES

THAN ANY OTHER STANDARD 750 GALLON PUMPER



JUST LOOK at this superbly engineered, top quality pumper delivered to the Pepper Pike Fire Department. *No other apparatus builder* offers a *standard* 750 G.P.M. triple combination pumping unit with so much standard equipment . . . so much advanced engineering . . . so many useful refinements.

COMPARE these proud features with any other make . . . and you'll want American Fire Apparatus too!

All These Features Are Standard Equipment!

PUMP — Barton-Duplex Multi-stage Centrifugal . . . the *only* two-stage pump with independent pumping units. (Also available in three and four stages.) Vacuum gear shift, vacuum clutch operation. All piping oversize . . . cuts friction loss to a minimum.

CONTROLS — All controls and gauges are complete in one panel on left side. Three 2½" discharge outlets with easy-operating ball-type valves in side of body . . . locking type handles.

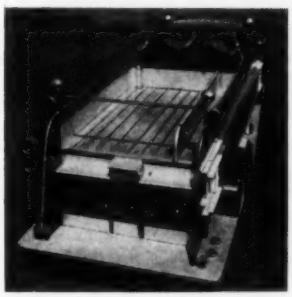
HOSE — Two fire-killing Barton Super-Fog Guns, carried in chrome-plated brackets. Two booster reels with chrome-plated rollers and spools . . . 300 feet of 1" booster hose standard equipment . . . special American electric rewinds. Quick-release suction hose carrier clamps, chrome-plated . . . new improved suction strainer.

BODY — Streamlined body joined with cab . . . full length, streamlined brass body rails and rear crossbar, all chrome-plated . . . heavy treadplate running board and rear step . . . streamlined rear fenders . . . slatted, natural-finished native oak hose-bed floor.

TANK — Capacity 300 gallons, with 3/16" bottom, 10 gauge sides, with lapped, welded corners . . . frost-proof tank outlet valve . . . tank float level gauge shows amount of water at all times. Patented rear filler doubles as relief valve — always protects tank when being filled with the pump.

EQUIPMENT — Full complement of fire department ground ladders on right side . . . plus all extinguishers, tools, brass fittings, etc . . . complying with National Board of Fire Underwriters' requirements.

. . . **PLUS** — Single, undivided responsibility for pump and engine that assures complete satisfaction.



COMPARE these big features with any other make . . . then contact your American Fire Apparatus representative!

Also FRONT-MOUNTED PUMP MODELS

American

FIRE APPARATUS CO.

BATTLE CREEK, MICHIGAN • MARSHALLTOWN, IOWA

Main Office: Main St. Road, Battle Creek, Mich.

"Always Pioneering with Better Engineering."

WHAT HAPPENS NEXT?

If management has been wise, a fire tragedy will be stopped before it starts...if not, in 20 minutes extensive destruction and total loss could readily be the result.

First-rate fire protection is essential to the continued success of any business. With C-O-TWO Smoke or Heat Fire Detecting Systems, plus C-O-TWO High Pressure or Low Pressure Carbon Dioxide Type Fire Extinguishing Systems, as well as PYRENE Air Foam Type Fire Extinguishing Systems for specific outdoor locations, your plant can have fast, positive round-the-clock fire watchman service simultaneously at each fire hazard point . . . a fire tragedy is stopped before it starts.

Furthermore, there is a personal sense of responsibility inherent with PYRENE—C-O-TWO Fire Protection Engineers that assures you of fully adequate firesafety . . . a definite plus in your behalf. Whether it's fire detecting or fire extinguishing . . . portables or built-in systems . . . PYRENE—C-O-TWO means top quality backed by experienced engineering that results in operating superiority for you at all times.

Act now . . . don't take unnecessary chances with your investment any longer . . . the extensive experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Remember . . . a plant-wide fire protection survey skillfully executed today could be the means for greater profits tomorrow.

Pyrene

PYRENE — C-O-TWO

NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

C-O-TWO

COMPLETE FIRE PROTECTION

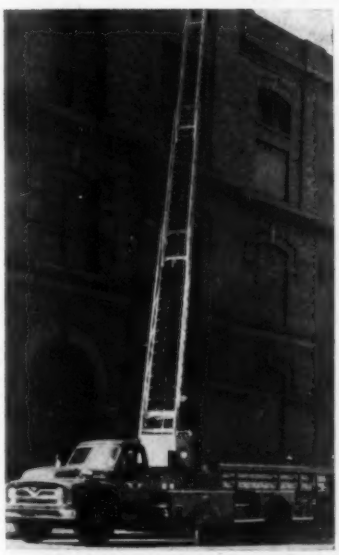
portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

NOW! even the smaller cities can afford a Seagrave Aerial Ladder

THE *Seagrave* COMMERICAL *AERIAL LADDER*

This advertisement will be of interest to smaller cities, volunteer fire departments and industrial fire services. . . . Seagrave has made it possible for you to have an all-steel Seagrave Aerial Ladder at economical price. . . . All operations of the Seagrave standard aerial are in this economy model. It has a new one-hundred percent hydraulic hoisting mechanism and ladder, Seagrave body and controls. IT IS ALL SEAGRAVE. The saving is made possible by building the 65 foot ladder on a commercial truck chassis. . . . There is no other aerial that can equal its quality construction for the price.



CLIP AND MAIL THIS COUPON!

THE SEAGRAVE CORPORATION
Columbus 7, Ohio.

We are interested in your new aerial ladder.

Name_____

Title_____

Street Address_____

_____

City_____

State_____

THE GREATEST NAME IN FIRE APPARATUS

2-WAY RADIO BLANKETS WAYNE COUNTY

Radio-Controlled Mutual Aid Has Improved County-Wide Fire Protection

● Chief John Stephan coordinates county-wide fire fighting at mobile headquarters in Lyons, New York.

● Volunteers at Palmyra, New York call direct from the fire scene for assistance from nearby town.

2-WAY MOBILE RADIO

FREQUENCY STABILITY & SELECTIVITY *guaranteed for life!*

Here is a situation where 27 volunteer fire departments banded together under one G-E mobile radio system. The result? Every town in their 607-square mile area enjoys vastly-improved fire protection. For emergency and routine calls . . . for civil defense drills . . . General Electric 2-way radio is the communication channel that coordinates all activities. It saves minutes, miles, and operating money in dispatching rolling apparatus to the scene of action . . . wherever it may be.

G-E mobile radio was selected after comparing routine and emergency performance standards on all makes. Because of low initial cost and bedrock maintenance, G-E won the bid. You can duplicate Wayne County's success with volunteer groups in *your* county. Contact Chief Stephan for a firsthand report that proves G-E is your best buy! Or, write us direct: *General Electric Company, Section X5945, Communications Equipment, Electronics Park, Syracuse, New York.*

Progress Is Our Most Important Product

GENERAL ELECTRIC

Custom-Built to meet your needs

BASIC SPECIFICATIONS OF HOWE DEFENDER CHASSIS

ENGINE—6 cylinder Continental, Waukesha or Hall-Scott
IGNITION—Dual, with 2 spark plugs per cylinder
STEERING—Ross cam and lever
TRANSMISSION—Fuller 5-speed forward
PROPELLER SHAFT—Spicer oversized for F.D. service
FRONT AXLE—Timken I Beam
REAR AXLE—Timken full floating. Ratio specially engineered for service requirements
CLUTCH—Lipe-Rollway oversized for F.D. service
BRAKES—Service-hydraulic with booster on 4 wheels. Auxiliary mounted on propeller shaft back of pump
TIRES—9.00 x 20 duals rear

FIRE EQUIPMENT

PUMP—Waterous with famous split case for easy servicing
BOOSTER TANK—Capacity optional. Standard construction completely removable top, made of steel with highest percentage copper content available, coated with 3-coat vinyl resin plastic
HOSE BODY—Heavy gauge stretcher leveled steel. Chromed hand rails side and rear
COMPARTMENTS—Full width over pump and large tool box. Others to order
WARNING SIGNALS and LIGHTING EQUIPMENT—Flasher siren, 2 hoselights, 2 spotlights, 2 headlights, pump panel light, 2 hand lanterns
FIRE EQUIPMENT—Set of ladders, 2 extinguishers, pump suction hose and fittings, axe, crow bar, pike pole, hose reel, 150 ft. booster hose and nozzle
FINISH—F.D. Red Lacquer, Gold Leaf lettering and striping

WHEN you order new equipment, choose an experienced, old-line company building the latest and best apparatus on any chassis specified AND producing custom-built pumpers—the famous HOWE DEFENDERS! If you have a special problem, such as water supply, hilly terrain, serving of both city and suburban areas, a HOWE DEFENDER built to meet your individual needs is the answer. DEFENDERS are efficiently serving in such widely separated centers as Dallas, St. Louis, Fort Lauderdale, Muncie, Ind., Jamestown, N. Y. Let our engineers recommend the pumper to provide you with dependable, adaptable equipment.

The 5-man, semi-cab of Aiken's new HOWE DEFENDER is shown in close-up at right. Rear seat takes three men off the running board for important riding comfort and safety. This is a triple combination pumper with 240 HP Waukesha engine. Its auxiliary 100 gallon power take-off pump works while truck is rolling.

HOWE

Member FAM (Fire Apparatus Manufacturers Association)

HOWE

"dependable fire apparatus since 1872"

FIRE APPARATUS COMPANY

Dept. FE4, 1400 W. 22nd St., Anderson, Ind., U. S. A.

Save Money with **HOMELITE** Pumps

Here is the simplest, lowest cost way to dewater flooded areas.

One man lifts a Homelite Pump off your truck and carries it to any spot you need it. Quick starting . . . and with the fastest possible self-priming . . . that Homelite gasoline-engine-driven pump will handle water, thick with solids, at the rate of 15,000 gallons per hour. It will do your pumping fast . . . and without tying up man power and vital high-cost equipment.

Why not, right now, write for our new fire department bulletin and see how Homelite Pumps, Generators, and Chain Saws are saving money for fire departments in many other ways.

Manufacturers of Homelite
Carryable Pumps • Generators
Blowers • Chain Saws

PERFORMANCE · DEPENDABILITY · SERVICE

HOMELITE
CORPORATION
304 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Ottawa.

DO YOU GET THIS KIND OF FOAM

from your AIR FOAM System?

This photomicrograph is the revealing secret of **NICEROL** *AIR FOAM'S TRULY AMAZING heat stability*

THIS IS WHY **NICEROL** *GIVES GREATER HEAT RESISTANCE*

The minute, closely-knit bubbles retain the maximum water content in a foam that is both adhesive and cohesive. This is the reason that Air Foam, made from Nicerol, defies fire breakdown, puts out more fire faster, and definitely outlasts the fire to prevent flashbacks.

NICEROL Air Foam Liquid lasts longer in the can, too, because it is specially processed to prevent corrosion of cans and containers—nor does it form sludge.

NICEROL Air Foam Liquid can be used with all approved types of air foam systems and nozzles.

NICEROL is more widely used throughout the world than any other air foam liquid.

SPECIAL TESTING OFFER

Simply write the one word "SAMPLE" on your official stationery and we will send to you: Freight pre-paid, anywhere in the U.S.A. or Canada, one 5-gallon can of NICEROL Double strength Air Foam Liquid, for $20 C.O.D. (or please enclose check). Test this sample can through your existing foam system—to produce 1,650 gallons of tough foam from only 165 gallons of water, fresh or salt.

The $20 cost of this sample will be deducted from your first order for NICEROL of 100 gallons and over.

Nicerol

THE LONGER LASTING AIR FOAM

Keeps longer in storage—Puts out more Fire Faster Outlasts the Fire

INQUIRIES INVITED FROM DISTRIBUTORS AS WELL AS USERS. FULL TECHNICAL AND COMMERCIAL DETAILS AVAILABLE FROM

GEORGE T. REYNOLDS & ASSOCIATES, P.O. BOX 395, THORNWOOD, N.Y., U.S.A.
BRITISH FIRE EXTINGUISHERS LTD., 222 SIMCOE ST., TORONTO 2B, ONT., CANADA

now...hear over sirens, wind-rush, engine and traffic noise

the big voice

in 2-WAY FIRE RADIO

- HIGH POWER AUDIO OUTPUT
- P.A. OR RECEIVER BOOSTER
- UNIVERSAL 6/12 VDC OPERATION
- LOW BATTERY DRAIN
- NOISE-CANCELLING MICROPHONE
- WEATHERPROOF SPEAKER

On apparatus speeding to a fire with siren screaming and engine roaring—and amid the noisy activity at the fire scene, the "big voice" of this new Fire Radio unit can be heard clearly. Even the most powerful unmuffled pumper can't drown it out. The high quality, weatherproof speaker reaches out with *10 times more audio power* than conventional mobile speakers to assure positive communication under actual fire fighting conditions—as a receiver output booster or as a public address amplifier. The Fire Chief is in contact with all units at all times.

This ruggedized, easy-to-install, low cost package is custom-designed for fire service and contains *all* the equipment for a functioning 2-way mobile radio installation.

Get full details on purchase, installation and maintenance from your local Motorola radio communication engineer by simply signing and mailing the coupon (be sure to ask him about the 30 day trial offer).

with weatherproof swivel mount speaker
with audio booster amplifier
with custom installation at low cost
plus complete selection of optional accessories

PLEASE HURRY COMPLETE DETAILS OF TRIAL OFFER.

NAME _____

TITLE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Motorola

2-WAY FIRE RADIO

Motorola Communications & Electronics, Inc.

A SUBSIDIARY OF MOTOROLA, INC.

4501 W. Augusta Blvd., Chicago 51, Illinois • Rogers Majestic Electronics Ltd., Toronto, Can.

Florida Fire Dept. Reports:

Lightweight . . . flexible hose made with Dacron* helps department keep up with increased work load

Rolling up hose made with "Dacron" after a fire. This flexible hose is easy to handle . . . and more of it can be carried on the apparatus because it racks more compactly than conventional hose.

"I like the new hose made with 'Dacron' because it resists mildew and deterioration—both tough problems in Florida temperatures," says Chief L. H. Greer of the Dade County Fire Dept., Miami, Florida. "My men like it because it's more flexible, lighter in weight, and rolls smaller."

Hose made with "Dacron" polyester fiber is easier to handle, permits fast coiling and racking—important advantages that help the Dade County Department more efficiently service an area where the population and number of homes have tripled in the last ten years.

Many fire departments are reporting increased all-around performance from hose made with "Dacron". Used as the load-carrying "filling" cord that reinforces the hose, this man-made fiber permits a hose that's light and flexible—yet *stronger*—than ordinary hose of the same diameter.

The superiority of hose made with "Dacron" has been conclusively proved by two years of field testing under all conditions. Du Pont makes only the "Dacron" fiber . . . not the hose. Fire hose made with "Dacron" is produced by many of the leading fire-hose manufacturers. Ask your supplier about it the next time *you* need hose. E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Dept., Wilmington 98, Delaware.

ADVANTAGES OF FIRE HOSE MADE WITH "DACRON":

- **Lighter**
- **Stronger**
- **More flexible**
- **Cuts loading time**
- **Saves space**

*REG. U. S. PAT. OFF.

DACRON

POLYESTER FIBER

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Variety in CABS *another reason for buying*

MAXIM
FIRE APPARATUS

THERE are many reasons why fire chiefs in all parts of the country continue to select MAXIM year after year—the wide variety of available designs is only one—but an important one.

BEFORE you buy, plan to see what you can get at our shop that will best suit your needs and serve you better.

- **We build a complete line of fire apparatus, pumpers, squad and rescue, combinations, aerials—including the MAXIM MAGIRUS, 100 feet and upward.**

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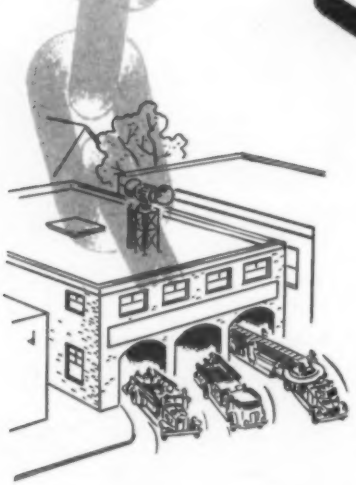
Don't Overlook the Connecting Link



The connecting link between the private fire alarm system or sprinkler system and City Fire Department is the Master Box.

Your fire losses are beyond the curb line. And you aren't getting 100% value from your alarm system unless your city circuits are interconnected through the Master Box to industrial plants, schools and public buildings.

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FIRE ENGINEERING

APRIL, 1955 VOL. 108, NO. 4

With the Editor

Where Do We Go From Here? The statistical bad news on 1954 fire losses is out. It makes sad reading. Most authorities agree on a life loss in excess of 12,000 and a property loss of over $1 Billion! These figures are sobering.

What most of us fail to appreciate is the fact that these losses—highest in the nation's history—come right at the time when our fire prevention and suppression effort is at its peak. You can only wonder what the tragic toll would have been *without* this effort!

At the same time, the accounting raises the natural question: Is the fire service doing all that it can to curtail this destruction? If it isn't, where does the fault lie? And lastly, what are we going to do about it?

Trying to pinpoint the blame is like trying to pick the one cause of a conflagration. There are too many imponderables. One of the most difficult problems is to get a clear picture of just what we are up against. Much information on fire causes and effects is available. We know, for example, that for the first time industrial fire losses have dropped behind certain other classifications. But when we get into our study of causes, we run slap bang into such things as acrolein—which sparked a $2 million chemical blaze; nicotinic acid dust, which boosted burnouts another $300,000; magnesium processing, which swelled waste totals another $400,000. Then there was that tragic trio of deadly gases ortho-dichlorobenzine, propylene-dichloride and ethylene-dichloride which laid low ten of the bravest in Philadelphia.

Complicating our present day fire control and extinguishing efforts are hazardous factors strictly of this kaleidoscopic age in which we live: widening uses of ultra-low and extremely high temperatures; high pressure and vacuum techniques to control violent chemical reactions. It's nothing today to encounter temperatures ranging from minus 300 deg. to as high as 5,000 deg. Fahr., and pressure conditions from almost absolute vacuum to 50,000 P.S.I., —not to mention such nightmares as countrywide distribution of high pressure natural gas, and growing use of liquefied petroleum gas.

But these aren't the only headaches. Our accelerated technological advances and expanding industrial activity are accompanied by increased concentration of values that must be protected. Fire and explosion hazards of vast diversity, in occupational groups heretofore safe from them, are arising to tax our fire experts, and our fire fighting facilities.

What facilities have we to cope with them? What of manpower? You know the answer to that one: the fire service has more men in the ranks today than ever in its history—and it is throwing fewer men, per department, into initial fire attacks than it did 15 years ago.

What of equipment and mechanical resources? We're not so far behind technologically, but what good is all the modern apparatus on the manufacturers' drawing boards, or in his warehouse, when starved fire protection budgets make it unavailable to the fire service in the quantity and quality needed?

What of research into these beforementioned causes and effects of fire and explosion, and of extinguishing agents, and their application? Has it ever occurred to you what the fire service could do in the way of basic, essential research with, say, the price of one modern destroyer?

And what about training and educating our fire fighters in the kind of firemanship that is needed today—and will be requisite tomorrow—to keep up with these mounting hazards, let alone gain on them! How many Fire Schools and Fire Colleges could be created and maintained by some of those paltry millions being poured into non-critical projects from Capitol Hill!

Well may we ask, where do we go from here? How much longer can the nation's fire service fight our "rear-guard action" against our most consistently deadly and destructive foe—uncontrolled fire!

Fred Shepard

Chemical Blaze Shows Value of Intelligent Fire Fighting

Proper Extinguishing and Control Agents Used to Confine Threatening Fire at Philadelphia

Editor's note: **Not every city has a chemical plant as vast and intricate as that which is the subject of this incident. Not every municipal fire department is called upon to meet situations in industrial properties such as confronted the Philadelphia Bureau of Fire on March 8, last; nevertheless, every progressive fire fighter is interested in such situations, knowing that the day may come when he may have to face similar emergencies either in his own municipality, or when called upon to go to the assistance of a neighbor.**

Also, there may come a time in the life of every fire officer when, in the interests of safety, he must decide whether to let a fire burn, or to extinguish it and run the risk of later, and perhaps even more serious, consequences.

Such a decision had to be made by the command at the incident reported here in considerable detail. Decisions, also, had to be made as how best to extinguish the fire that judgment decreed be put out, and how best to contain and confine the blaze that it was considered essential be left to burn.

Playing a critical role in the drawn-out drama of this episode was not only the large cast of Philadelphia fire fighter "performers" but the vast and varied assortment of "props" employed in the form of fire fighting facilities during the 25 hr.-6 min. action-packed drama, from explosive overture, to final curtain.

The editors of "Fire Engineering" are greatly indebted to the principals of this cast for making available to this Journal's vast reader audience the fascinating, instructive score of this production.

Particular acknowledgment is extended Commissoner Frank McNamee; to Deputy Commissioner, and Chief of Department, George E. Hink; to Captain Joseph T. Gibbs, in charge, Reserve Fire Fighters; and to Lieutenant Robert Kennedy, Departmental Photographer, whose remarkable pictures enlighten this report.

SHORTLY before 3:55 p.m. on Tuesday, March 8, a violent explosion occurred in the Alkylation Section of the Cumene Plant, at the Barrett Division of the Allied Chemical and Dye Corporation, Margaret and Bermuda streets, Philadelphia.

The blast, which was felt over a wide area of the City, and shattered hundreds of windows around the quarter-mile square grounds of the plant, injured five Barrett employes and at least three persons at nearby homes. It touched off a fire in the newly built phenol unit, a six-story complex of tanks and piping, flames of which mounted high in the air, sending up vast clouds of oily smoke.

Before this fire was fully extinguished and the fire forces returned to quarters, 25 hrs. and 6 min. after the first alarm, a combined Departmental force of 23 chief officers, 43 company officers and 293 firemen were thrown into action, using practically every modern fire-fighting facility in the Fire Department and, in addition, all the resources of the big plant's Fire Brigade.

Plant and Adjacent Area

The Barrett Division of the Allied Chemical and Dye Corporation is a rambling chemical processing and manufacturing plant located on 33.3 acres in the northeast section of Philadelphia. Bounded on the east by the Frankford Creek, on the north by the Frankford Arsenal and the plastics manufacturing plant of the Rohm and Haas Corporation, with the westernly and southernly boundaries—Bucking and Stiles streets—being occupied by rows of single-family dwellings, a school and the usual number of neighborhood shops and stores.

The products manufactured include benzol, toluol, napthalene, niacin, phenol, acetone, thalic anhydrid, cumar (resin), with the shipping and transportation of the products being handled by drums, tank cars (railroad) and tank trucks.

During January, 1954, the Barrett Division completed the installation of a plant for the processing of certain chemicals with the end product being cumene, which is used as a starting material for the manufacture of phenol and acetone. The chemical components normally in the tanks during processing are: 42% Benzene, 37% Cumene (Benzene with Propylene), 21% Heavy Oil (high boiling, similar to heavy lube oil), trace quantity of Aluminum Chloride Catalyst Complex.

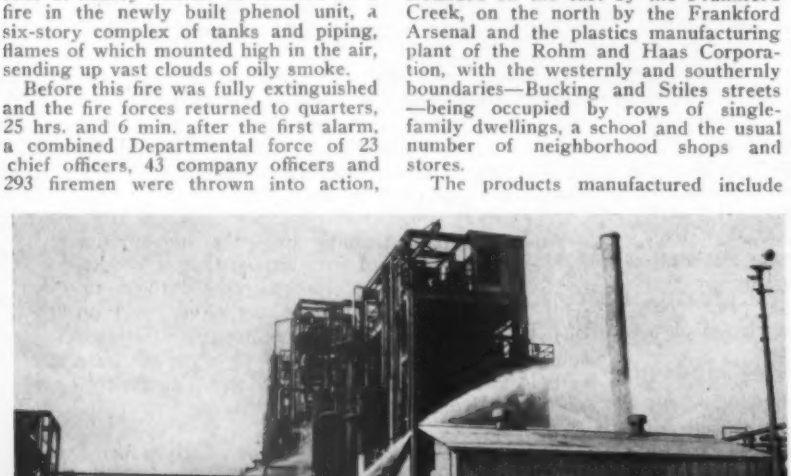
It was in the Alkylation Section of the Cumene-Phenol Department, near the Wakeling and Stiles streets gate of the main plant, that the explosion occurred.

The principal structure of this Department is a battery of tanks through which the petroleum base products are pumped and separated in their various stages before emerging as the finished product-synthetic phenol.

The explosion, centered in the sump pit of the compressor house, caused the ignition of vapors in the sump pit and surface level of the compressor house and also caused the rupture of a one-inch line at the base of the cumene processing tanks, resulting in a violent fire in this area. A propane line also ruptured and ignited at the second level of this four level structure.

The fire was confined to a relatively small area near the north end of the structure, principally at ground level, near the base of two 8,000 gallon tanks containing the chemical in its unfinished stage.

Upon the arrival of first due Battalion Chief Peter Kelly, two fires were found burning, the one described above, and the other about 40 feet away, centered in a pit adjoining the compressor house, a small steel structure with corrugated asbestos siding and roof.



Philadelphia F.D. Photo by Kennedy

Western exposures, covered by heavy lines from deck guns and hand lines in hose holders. Compressor house at right shows effects of blast. Foam lines have been shut down.

This fire was quickly extinguished.

Explosion Laid to Pump Failure

A careful examination of this area by members of the Fire Marshal's Division indicated the explosion had occurred at this point. The electrically operated sump pump, which extended seven feet into the pit, was blown clear of its position, breaking its piping connections. In addition, much of the asbestos siding on the compressor house was shattered and blown off.

It was determined that the pump was used to draw drainage from the Cumene-Phenol Department through an underground pipe into the sewer system. Several drains from this department feed directly into the underground pipe and thence to the pit below the sump pump.

It was also learned that shortly before the explosion, a blockage had occurred in a pipe in the area near the 8,000 gallon tanks. This pipe has been blown out under pressure by employees, causing the loss of some chemical onto the floor and into the drainage system. Also, an alkylator in this area had been disconnected and removed to the machine shop a few minutes before the blast. There was probably further leakage into the drainage system at the time this pump was disconnected. It was also disclosed that the sump pump had not been operating properly, and an electrician had been working on it at different times on the day of the explosion.

The conclusion reached by the Fire Department was that an unusually large amount of volatile chemicals had accumulated in the sump pit, and these were ignited by a spark from the electrical system which energized the pump.

The violence of the explosion in the sump pit not only ignited the vapors and chemicals in the pit, but also loosened and ruptured a one-inch pipeline leading from an 8,000 gallon tank containing volatile liquid to an instrument panel. Leaking chemical from the ruptured one-inch line also was ignited and it was this leak which fed the fire for approximately 19 hours, before it was extinguished. The control shut-off for the ruptured line was immediately above the rupture and fully involved in the fire, preventing the shutting down of the leaking chemical in the ruptured one-inch line.

The explosion and fire in the sump pit was simultaneous with the rupture of the one-inch line, and occurred in a matter of seconds. One distillation operator working at the fourth level above the main leak, suffered second and third degree burns in the flash of fire. Several other men received minor burns and lacerations.

Company Fire Protection

Before reviewing fire fighting operations, mention should be made of the Barrett Plant Fire Protection facilities. These include (a) 1-750 GPM Seagrave Pumper; (b) a plant fire brigade consisting of 14 teams with 10 men to each team, trained monthly in fire fighting techniques; (c) a pumping system capable of delivering 6000 GPM and servicing a 600,000 gallon tank reservoir and over 50 yard hydrants; (d) 14,800 feet of 2½" hose and 900 feet of 1½" hose; (e) 54—2½" Rockwood all-purpose nozzles, 18 low velocity fog applicators, 4 single hopper foam generators, 7 East-man Deluge Guns, 7—500 GPM fog nozzles; (f) first aid appliances, consisting of 267—2½ gal. foam extinguishers, 87 vaporizing liquid extinguishers, 129 carbon dioxide extinguishers, 91—20 lb. dry chemical extinguishers; (g) a foam inventory of 60,000 lbs. of foam powder and 7,500 gals. of liquid foam.

Fire Department Operations

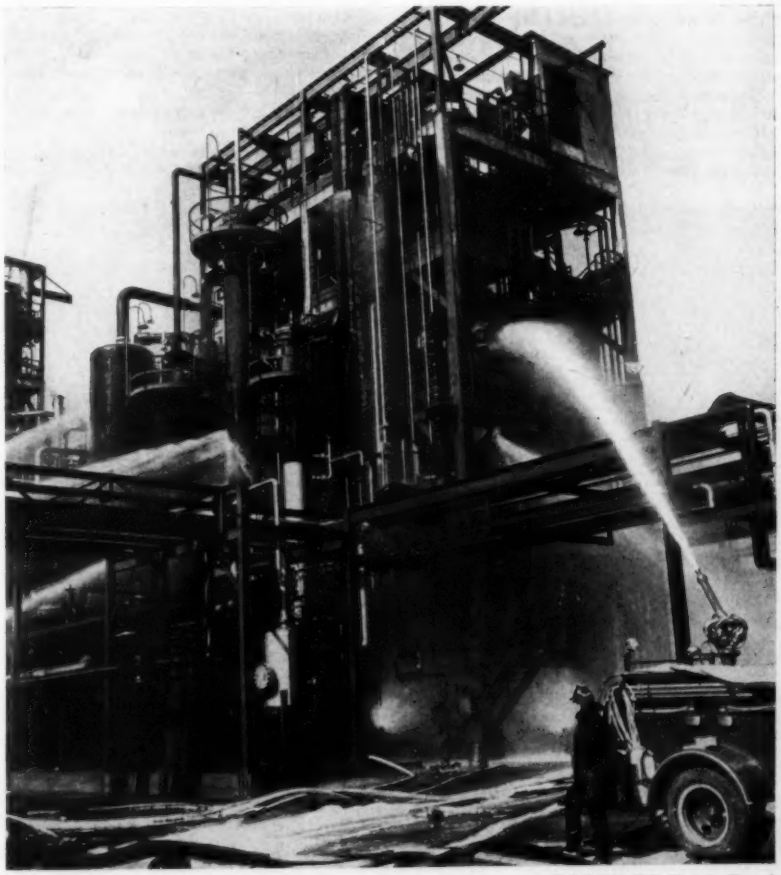
The fire units arriving on the first alarm, consisting of four engine companies, two ladder companies and one rescue company, were ordered by the responding chief officers—the Battalion Chiefs of the 10th and 12th Battalions—to concentrate on stretching water lines for the cooling of the affected tanks and exposed areas and to set up the application of foam on the compressor house area to extinguish the fire in that location. The second alarm was immediately ordered, which brought to the scene Deputy Fire Commissioner George E. Hink, Chief of Department, who arrived at 4:08 P.M., and Assistant Chief of Department Joseph M. Clarke, and Fire Commissioner Frank L. McNamee, who arrived at 4:13 P.M. and 4:15 P.M. respectively. Chief Hink ordered the third and fourth alarms to be sounded, and set up the attack-pattern, which eventually controlled and extinguished the hazardous fire. Despite the dangers under which fire fighters operated, only four firemen were injured and these superficially. Property damage to plant installations was negligible.

With Chief Hink's arrival on the second alarm, he found that fire involved the northern end of the Alkylation Section of the Cumene Plant and also, across the road to the north, the compressor building, pumps, pump houses, etc., were entirely involved.

Streams were ordered on the compressor building and the exposed adjoining tanks, and an attack was made on the main body of fire. Heavy streams also were ordered to cool down the tanks and surrounding area.

Chief Hink at once sent for plant protection men and supervisors and, after conferring with them, learned that two 8000-gallon tanks of chemical were involved. From first observation it was believed that at least one 6" line was ruptured inside of the valve at the bottom of the tanks, that the tanks contained highly volatile chemicals of an extremely low flash point. This particular area was not diked.

It was decided that the correct procedure would be to keep the tanks and all of the surrounding area cooled down with heavy streams and also to set up heavy fog streams to cool down the lower part of the tanks and the area exposed to the very violent fire. It was noted that all of the leaking chemical was not burning, that some of it was



Philadelphia F.D. Photo by Kennedy

Two B-500 fog nozzles in Multiversal units operating close to propane fire while heavy turret streams cool second level and protect exposures. Note discontinued foam hopper in lower center.

floating on top of the water and that this floating chemical readily ignited, creating the danger of spreading fire through the entire area and involvement of firefighters.

A conference was held between Chief Hink, Chief Clarke and Barrett plant officials and it was decided not to extinguish the fire, although complete extinguishment could have been accomplished by the Fire Department with heavy foam concentration. Rather, the strategy adopted was to let the fire burn and to cover all of the exposures with heavy water and fog streams. Prominent among these exposures were several cylinders of gas which were close by the fire, and two tanks of benzene. All of these hazards were covered.

SS-100, the Fire Department's chemical attack apparatus, was brought into operation, delivering great volumes of foam from a 2½"-line and two 1½"-lines. With the addition of foam lines from the plant, fire fighters were able to blanket the entire area; in this connection it should be remembered that the drains were not carrying off the water, so that firemen faced an accumulation of water in the entire area, in some places as much as 15" deep, and that immediately following the absence of foam coverage, the oils would ignite.

Chief Hink's decision not to extinguish the fire proved correct, for had it been put out, the volatiles would have flowed over the entire flooded area, with the imminent possibility of a flashback which conceivably would have enveloped that entire area in a sea of flame and quite possibly would have doomed that entire section of the Barrett plant; and at the same time would have jeopardized the lives of the firefighters present.

Fire Department operations proved highly successful; the fire was kept in constant check and did not spread beyond the base of the tanks involved. After a sufficient amount of the chemicals had flowed from the tank, firemen the next day were able to employ the strategy of pumping water into the top of the tanks, which displaced the oils from the bottom of the containers and permitting the valves to be closed, ending the fire.

Philadelphia F.D. Photo by Kennedy

Sump pump blown from its mooring when spark from electrical connections ignited vapors accumulated after pump failure. Scene pictured is approximately 40 feet north of the Cumene-Phenol Department.

The foregoing covered the fire control permitted the valves to be closed, endcome to those of the following day.

Operations of Wednesday, March 9

Shortly after 8:00 A.M., Wednesday morning, March 9, Chief Hink, Asssistant Chief Clarke and Battalion Chief Eckles of the Fire Marshal's Office, met with the Barrett plant officials and decided to pump water into the top of the tanks; as said, the oils being lighter, the combustibles would necessarily float to the top of the tank. The heavy oils, or sludge, would of course, drop to the bottom of the tank, and after the heavy oils burned off they would be followed by the water, at which time it could be anticipated the fire would go out. This reasoning was determined after tests were made in the chemical laboratory of the plant. Three tests were run with samples of the tank contents, which were placed in beakers partially filled with water.

After this procedure had been followed, the company workmen, under the cover of Fire Department fog spray, would attempt to repair the leaking broken lines.

Chief Hink conferred at length on the course to be followed should the workmen be unable to make effective repairs; in this event it was decided that firemen would then allow the oil to flow and to be dissipated by streams of water and the vapors controlled by fog spray.

This procedure was adopted and, at 10:45 A.M., the heavy oils finally burned out and, as anticipated the water followed through the broken lines to the base of the tank. The Fire Department advanced heavy fog coverage for the plant repairmen, who found that the broken lines were relatively small and that the break was outside the shut-off valves; whereupon the shut-off valves were closed and the leaks stopped. Fire officers and company supervisors then proceeded to close all of the valves in the fire area, including the valve which controlled the leak of propane gas. In this instance, again, the Fire Department was fortunate in that the propane leak was outside the valve, and therefore permitted shutting down the propane leak.

The Fire Department continued to stand by, wetting down and cooling the involved area, until approximately 7:00 P.M. Wednesday night, at which time Chief Hink and the plant protection supervisor decided that the danger was past and that normal conditions were resumed. A token force of firemen,

Philadelphia F.D. Photo by Kennedy

Deputy Commissioner and Chief of Department George E. Hink shown conferring with Barrett Plant officials on fire defense measures to be taken. Note impact of heavy streams being used to cool tanks against fire.

nevertheless, stood by until 12:00 midnight, at which time all Fire Department operations ended.

Conclusions

A number of conclusions may be drawn from this incident. The first, and perhaps most important, is that the pre-fire planning and preparedness which the Philadelphia Fire Department has exercised for the protection of critical installations, such as the big Barrett Plant, was fully justified.

This advance preparation came about partly as a result of the experience of the Department in meeting previous emergencies at the Plant, and partly because of the Fire Department's advanced techniques of fire suppression, several instances of which have been described in FIRE ENGINEERING. Without this planning and preparedness, according to Chief Hink, a disaster could have resulted, affecting both the Plant, and Fire Department personnel operating at the incident.

Linked with this pre-fire planning, is the progressive training program of the Fire Department, which is geared to keep personnel abreast of advanced techniques in fire control and extinguishment.

This training, which stood the Department in good stead in this operation, includes efficient use of the Department's specialized as well as standard, facilities. It includes the deployment of master streams, both large scale fog and straight streams, from deck and deluge guns. As shown by the illustrations, the liberal use of these master streams, coupled with the fact that once these stream appliances were deployed in proper position for stream coverage they could be left unattended, permitted firefighters to remain at safe distances, and proved a major factor in containing the threatening fire.

The emergency again attested the wisdom of a fire department having ample reserves of extinguishing agents, such as foam, as well as the appliances to deliver them onto the fire, or the exposures. True, no department can afford by itself to maintain all of the facilities that may be required in a major catastrophe, but even under these unforeseen conditions, pre-fire planning should prepare the department to know where and how reserves can most readily be secured. In this instance, possible large scale need of foam resulted in additional supplies of this extinguishing agent being sped to the fire scene under police escort, from Fort Washington. Arrangements also were made with the Pennsylvania Railroad to have a carload of foam sent from Newark, N. J., to a siding at the Plant.

Foam application, using the Fire Department's SS-100 portable appliances and Plant lines, was maintained effectively, to help control potential flashbacks in the surface-flowing chemicals. This unit was under the supervision of the Repair and Special Service Section of the Department. It responded on the second alarm, and provided foam application for many hours through its proportioner, supplying one 2½-in. and two 1½-in. foam lines. In this operation it was assisted by attendant apparatus Chemical Companies 1 and 2.

In passing, it might be mentioned that the Repair and Special Service Section also maintained and operated these other units during the emergency:

(a) Mobile Hospital Unit, which was set up for the immediate care of fireground injured. This was staffed by Chief and District Surgeons.

(b) Gasoline Tank Truck, which dispensed 1,025 gallons of gasoline to fire apparatus in service at the fire.

(c) Light Wagon, which provided complete illumination of the fire area.

(d) Pick-up Truck, which carried tools and equipment for on-the-scene repair of apparatus. Personnel of this unit made such repairs to two pieces of apparatus. They also removed tools and equipment from the fireground at the conclusion of operations.

Included in the operations of the Repair and Services Section was the setting up of Pumpers 42, 55, 61 and 71 as "standy-bys" for use in the event of failure to any in-service units. Its personnel also assisted in placing plant foam generators in service, and in redeploying Departmental apparatus on the fire ground to more strategic fire area locations.

This incident also illustrates the wisdom of cooperative, coordinated effort on the part of both Plant management and Fire Department. Close and frequent consultation between safety and security personnel of the plant, and top Fire Department officials, paid off in this emergency. It is of note that during the period of operations, no one, except fire fighters and authorized other personnel, were allowed inside the Plant enclosure. The entrance gates were manned continually and fire apparatus movement was facilitated in every way into and through the complicated Plant layout.

In any sustained operation such as this, provision should be made for maintaining large operating forces in the field. This was accomplished by the aid of the Salvation Army, the American Red Cross and the Second Alarmers Association.

Another important consideration in situations, such as this, is communications, both between fire units operating within the sprawling Plant, and between officials in the field and Fire Department Headquarters. The Electrical Bureau had its Mobile Communications Unit on the scene, and provided direct radio communications between the fire ground and Headquarters. In addition, a public address system covering the entire fire ground was set up under direction of Edgar P. Grimm, Chief of the Electrical Bureau, and Frank Schierf, Superintendent, Fire Alarms and Radio, and William Tebbs, Supervisor, Fire Alarms.

Chronology of Alarms and Response

1st Alarm—Box 4323—Wakeling and Stiles Sts. 3:55 P.M.
Engs.: 33, 14, 52, 7; Lads.: 15, 10; Batt. Chfs. 10, 12; Rescue 2.

2nd Alarm—Box 4323—4:03 P.M.
Engs.: 70, 38, 28, 42; Lad. 22; Batt. Chf. 6; SS-100.

3rd Alarm—Box 4323—4:22 P.M.
Engs.: 61, 36, 64; Lad. 16; Batt. Chf. 8.

4th Alarm—Box 4323—4:34 P.M.
Engs.: 71, 25, 55; Lad. 28; Batt. Chf. 4.

Move-Up and Re-Locating

Eng. 45 to Eng. 14
Eng. 44 to Eng. 42
Eng. 39 to Eng. 71
Eng. 51 to Eng. 61
Eng. 19 to Eng. 52
Lad. 29 to Lad. 28
Lad. 18 to Lad. 10
Battalion Chiefs' cars returned to respective stations and Captains detailed to act as Battalion Chiefs: 4, 6, 8, 10.

Total Apparatus at Fire

Pumpers, 14
Booster Pumpers, 12

(*Continued on page* 374)

Philadelphia F.D. Photo by Kennedy

Over 500 panes of glass were blown out of the Henry Longfellow Public School, located at Tacony and Pratt streets, two blocks from scene of explosion in the Barrett Plant. Fire officials noted that on Tacony street, facing the blast, windows were blown into the school. On the other side, the windows were blown out. The shock waves apparently traveled above the two-story homes in the neighborhood. The blast fortunately came after school hours.

Overhaul and Salvage—in Theory and Practice

Part II—Overhaul, continued—Dwelling fires; Pilfering; Use of Wet Water; Hazards of Baled Goods, Drugs, Chemicals, Dusts; General Rules and Recommendations

By ROI B. WOOLLEY
Assistant Editor Fire Engineering

OFFICERS should impress upon their subordinates, both at fires and company drills, the necessity of using extreme care in handling articles of personal property, or other materials of value, both in the fire building and in any adjoining premises that may have to be entered in connection with fire duty.

It is inevitable that overhaul and salvage operations will, at some fires, necessitate the handling of money and other valuables such as jewelry, heirlooms, antiques, etc. Few fire departments are fortunate enough to escape the claims (whether warranted or not) made by irate, or conniving tenants or property owners, that valuables are missing and "of course" the firemen are responsible.

It cannot be denied that some fire fighters, paid and volunteer, have pilfered; there are cases also where money and valuables have been taken. But these instances are rare; the progressive fire department or salvage will not tolerate the practice of even petty pilfering.

We have already mentioned teamwork. Overhauling by teams, and under supervision of officers, still further reduces the possibilities of such derelictions. By designating and restricting overhaul crews to certain areas, it is easier to account for each man's operations.

The brighter side of the picture, and the more common one, is where firemen turn up valuables, through their painstaking overhaul, which the owners believed lost in the fire.

Overhaulers also have the responsibility of handling valuables to prevent needless breakage. True, with short crews and the need for returning to quarters as quickly as possible, it is not to be expected that those charged with overhaul can devote all the time and care to the business of separating the damaged from the undamaged goods, and of setting aside more valuable material, which the ideal fire department would like. But this is no excuse for not making the effort.

Having a System Helps

There is no universal pattern or plan for overhaul, as we have said. But there are certain basic fundamentals to be considered, some of which we have already enumerated.

Successful overhaul needn't necessarily follow a pattern or plan, but it helps if those who practice it develop a system, or routine which: (1) protects men against possible injury; (2) insures greatest protection to structure and contents; (3) insures inspection and examination of all damaged areas and materials; and (4) saves men all unnecessary physical exertion and hardship.

As one experienced officer put it: "overhaul isn't all done with the hands, and tools; most of it has got to be done with the head." Just as in salvage operations, a pair, or a crew, of experienced, trained operators tackle their work systematically with no confusion or lost motion; step by step, they thoroughly cover the ground. There is no working at cross purposes, or "against each other." They know where to begin, and where and when to stop. It is always inspiring to watch a thoroughly experienced fire crew overhaul after a fire has been "knocked down."

In beginning overhaul, it is a general custom to clear away a space at each end of the floor to which the materials subsequently overhauled are moved. If there are empty containers available, they may come in handy, particularly if it is necessary to closely screen the material to locate valuables.

Overhaul usually begins at the top and works down, the men being careful not to scatter or cover any material that retains fire. Care should be taken to see that materials not on fire are not knocked about with a fire stream, or tramped on unnecessarily. If at all possible, the undamaged and less damaged goods should be set to one side. The damaged, in which fire may lurk, should not be washed with hose streams. The smoldering material when sorted out, or as it is being sorted, can be dipped into a bucket or tub of water to extinguish the fire [this is where containers come in.] As we have said, the bathroom tub or the kitchen sink make good places for dunking these materials. However, a charged water line should at all times be kept handy.

Whenever possible, heavy objects or materials should be placed near walls or over supporting columns in order to lessen the likelihood of floor collapse.

Care should be taken against promiscuously throwing materials out the windows. It seems to be a habit in not a few fire departments to shovel everything movable on a floor out of windows. Pieces of burned flooring; lath and plaster; burned and even unburned furniture and clothing, some of which might conceivably be salvageable, all come flying out, mixed with dirty water, to make an unsightly pile. It is not uncommon to see this heap of debris rekindle, with the result that it, too, must be again overhauled.

Unquestionably there will be times when to facilitate overhaul, material, particularly burned lumber, bits of tin and steel, ceilings, glass, etc., must be removed from the floors of a burned building. But this can be done with some degree of neatness and without littering up the street or side-

Short-handed crews (and toxic fumes from plastic seat covers) make it difficult, if not impossible, to perform salvage and overhaul operations "according to the book." No experienced fire fighter likes to leave premises looking like this after a fire. Note insulation bats which had to be dug out of ceiling in overhauling operations.

walk. Many firemen agree with the precept that it is poor business to dump the damaged contents of a place of business out on the street because it not only looks bad, but it means extra handling, possible injuries to handlers, and it conveys a bad impression to both the building's occupants and to the public. We have seen fire fighters, who wouldn't think of throwing anything out on the street, dump it into side or back yards, with complete destruction of costly shrubs, hedges and gardens.

Generally speaking, it is considered good policy to remove only non-salvageable material, such as plaster, lath, paper, etc., from the fire building. If this material is such that it can be collected, and carried out in containers, as we have mentioned, such as large garbage cans, it makes for the best procedure.

Wet Water Aids Overhaul

Until the advent of wet water, smoldering mattresses, and overstuffed furniture, and baled goods were usually removed from the building and then overhauled and wet down on the outside. Now, judicious use of wetting agents make most of this unnecessary, saving much overhaul and preventing the inevitable mess that follows 'disemboweling' of such articles (especially on a windy day).

The use of wetting agents in fire extinguishment, and in overhaul, is at present too limited to warrant including in this series the claims made for it by some of its adherents. However, its value in final and complete extinguishment of fire in cotton and other baled goods and a large number of other materials, has been determined beyond all doubt. As more and more fire departments and salvage corps come to use it, 'wet water' will find newer and more productive applications. It is recommended that every fire department, and in particular those carrying out salvage work, keep a supply of this extinguishing agent for the particularly troublesome overhaul and salvage operations.

The use of wetting agents in salvage operations calls for judgment both as regards its application, and its possible effect on salvage covers and tarpaulins. Also, inasmuch as when used on baled absorbent goods it will not run off as does water, but rather, penetrates more deeply into the bales than water, it may have a tendency to increase the weight of the material more so than other extinguishing agents. These and other details should be considered by all fire officers utilizing the product.

It is well for all firemen to remember that all scorched or partially burned articles, sorted out from the debris, although they may have no salvage value may prove helpful in preparing inventory of loss. Naturally, partially burned records and documents should be laid aside and saved if at all possible during overhaul.

Losses can be reduced, also, by not opening any more containers, packages, bales and bundles of valuable material than is absolutely necessary to check for fire. By leaving closures and contents in their original condition and position, while making examinations, losses can be materially reduced. In some cases, if it is found that a package or bundle shows evidence of burning or smoldering, the wisest course may be to remove it from the building, particularly if of a highly flammable nature. Opening of such a closure may spread the fire to other materials or drive all hands out of the area. Here too, such materials when removed, should be collected as neatly as possible in a safe place. If necessary, as they are removed, they can be covered by water fog, or the spray of a control nozzle. Hitting them with a heavy stream will only scatter the material, and quite possibly the fire too.

Pre-fire inspection disclosed this storage of cyanides, potassiums, acids and other chemicals which might have brought death or injury to fire fighters during a fire in the structure. Hazards were ordered removed at once to an isolated area outside the city. Advance knowledge of an occupancy can facilitate and safeguard fire control extinguishment, overhaul and salvage.

Baled Goods a Real Hazard

Too much emphasis cannot be placed on the importance of evaluating the possible effects of the extinguishing agent on large packages or bales, especially if of paper, wool, cotton, hay or the like. Not only may they become a dangerous hazard because the absorbed extinguishing agent greatly multiplies their weight and expansion, but they may produce much smoke, and frequently it is difficult to determine the exact location of the fire in such stocks. Furthermore, large quantities of water are usually required to control fires in such materials. In brief, this type storage presents one of the more serious problems in the overhaul category.

When handling this material, many fire fighters consider it the wisest policy whenever possible (if wet water is not available) to remove the bales entirely from the buildings, taking out those from the center of the floor first to relieve the floor load. Pile those which are removed to the outside in such a manner as to be accessible in case of rekindling. Incidentally, care should be taken not to bury hose or other fire department equipment in this operation.

Removal of heavy, cumbersome bales, such as news-print rolls, is always a problem and usually calls for extra manpower and equipment. Sometimes it may be necessary to breach a wall so that the material to be overhauled can more easily be removed to the outside. Power movers, such as fork lift trucks, may be called for in these operations but at all times consideration should be given to the safety of operating personnel.

In overhauling premises where paper or rag stock is stored, it is not unusual to find that bales are piled to the ceiling and most of the floor space occupied. This makes floor operations difficult and accentuates the need of removing storages from the structure. It is naturally imperative to get that material out at the earliest possible moment to prevent possible further absorption, and collapse of floors and pushing out of walls.

Overhaul operations in this type occupancy should start at the top floor, removing the bricks from the window sill down to the floor level, opening up the wall, as stated, to permit throwing the bales to the ground. A passageway can be opened through the middle of the floor as this is the weakest point which should be relieved first.

Where it may be necessary to overhaul this material on floors below, it is better not to remove the bricks from the window sills in the same line, but to stagger them, so as not to weaken that side of the building on which openings are made.

As materials are removed to the street, a charged line should always be available to wet down the bales or bundles as soon as they are opened. Officers directing such operations should make it a point to see that overhauled material is not washed down into the sewers, which might clog them. Also, they should see that materials so placed in the street or other passageways do not impede the flow of traffic.

Overhauling Drugs and Chemicals

Perhaps the second most hazardous overhaul undertaking is in drug stores, chemical warehouses, wholesale drug stores, paint shops, and other occupancies where toxic material, or explosive, corrosive substances are stored. Here, extreme care should be exercised not to pull any vessels or cans or bottles from shelves or knock such receptacles over where they may be broken or

Photo by Bill Herries

Dumping of debris on sidewalk and street, as shown here, slows pedestrian and vehicular traffic, requires extra police, and does little to create favorable impressions about the fire department in the minds of the public

opened. Bottles may contain chemicals which, if broken and their contents strewn about, may cause explosions and spread fire. The solder on cans containing turpentine or some other highly flammable material, may have been melted by heat, and if they should be dropped to the floor serious complications may follow. If such containers must be removed from shelves, take them down one at a time.

It is a good plan to remove carboys or containers of sulphuric acid, calcium carbide, nitric acid and like acids, if not on fire. The safe practice in such removal is to carry them "heads up." And extreme care should be used in carrying them to prevent spillage. If spilled, some acids can be absorbed with sand or dirt; others can be flushed away or diluted with large quantities of water. When water comes into contact with some acids, small explosions may occur and scatter the liquid. It is therefore a wise precaution to operate streams from a safe distance. Some departments make use of low velocity fog applicators as protective screens in such operations.

Every fire fighter knows that certain chemicals produce violent reactions with other chemicals. Extreme care should be exercised by overhaulers in handling leaky or otherwise damaged chemical containers so as not to mix the contents thereof.

This leads to another observation on overhaul. Where operating in such occupancies, or wherever any chemical hazards are believed to exist, suitable gas masks should be worn at all times. It is essential that hands and tools be thoroughly washed after overhauling operations where such chemicals are handled.

Beware of Dusts

Other types of occupancies wherein overhaul may be hazardous are structures housing wood turning mills, coffee or spice houses, grain elevators, flour mills, and so on; in fact, any building where considerable dust accumulates.

Most firemen are familiar with explosive dusts, but not so many realize that careless use of streams in overhauling in such occupancies may scatter explosive mixtures to be ignited by a spark or flame.

Overhaul in any building where considerable dust has accumulated should include inspection of all beams, rafters, ledges or other places where dust is likely to settle. As heat will ignite this dust, such examination should be general in all parts of the premises. The dust will support fire in smoldering condition and throw off very little smoke, so extreme care should be taken in the examination of overhead pulleys, belts, motors, and flat surfaces. Where considerable dust is present, and there is danger from a spark or open flame, special precautions should be taken not to dislodge such dust so as to diffuse it in the area and create a flammable mixture. Here, again, water fog and wet water come in for consideration. Wherever high-pressure fog is used, care should be taken to see that entrained air does not scatter the dust, thereby adding to the hazard.

As a precautionary measure when overhauling in such occupancies, windows and doors should be opened to relieve the pressure, and all persons should be evacuated from the floors above. When it is required to overhaul bins that have contained dust or grain, it is considered well to treat such bins with applications of water to kill any spark or fire that may remain.

Overhauling Dwelling Fires

Probably no single occupancy offers as great opportunity for care and efficiency in overhaul as a place where people live. One can perhaps condone an imperfect job of overhaul in a factory, office or store, where more than likely there is some insurance, but there is no excuse for needlessly ripping apart, and dirtying up a dwelling, be it cottage or mansion, in the guise of overhaul.

By far the largest number of building fires in this country occur in the dwelling group; certainly it is this classification with which the volunteer fire fighter most often comes in contact. Here, therefore, might well be the starting point for perfecting overhaul and salvage operations.

One of the first essentials in overhauling the dwelling fire, once it is determined no lives are to be saved, or victims hunted for and located, is to get everyone out of the house who hasn't a definite task to perform. In small towns, particularly, where police are scarce, it may be necessary for firemen to remove the tenants or owners who have re-entered the premises to try to save something. Frequently, in the excitement and rush of getting at a fire in such occupancy, especially where there is a volunteer fire department, it may be difficult to distinguish between a tenant or householder, a volunteer fireman, and someone off the street.

Of course it is axiomatic that firefighters should wear the helmet and garments, or at least the badge, of their calling. But it doesn't always work out that way. All of which causes confusion, makes it difficult to maintain order, and control pilfering.

It is assumed that the householders of the building either got out of the house, or were removed from it and that they will not be present to interfere with fire fighters in completing their overhaul and salvage work. But it quite conceivably may be that some of them may be present and, if so, they should be politely but firmly removed. They are not going to exactly relish some of the overhaul operations necessary to ferret out and extinguish the final sparks and embers, and it is best to remove and keep them at a safe distance.

Although it may be true that municipal departments are short of men, the reverse may be true in certain volunteer departments, particularly at off-work hours. Under these conditions, it is not unusual to find many more firemen crowded inside the building than could possibly be used, either for fire fighting or salvage. We will hear more about this as time goes on, but the point is raised here because the officer in charge should see to it that, as quickly as possible, all firemen not specifically engaged, as well as all householders, should leave the building involved.

We have said men should work as teams, and under supervision. It is not always easy to follow this practice when dealing with untrained volunteers, some of whom may know the owner or occupants of the fire building and be especially zealous about putting out the fire or saving the contents. But friendship and zeal should not interfere with efficiency and, distasteful as it may be, the officer in charge may have to ignore personalities in laying out and allocating the overhaul tasks. There must be an element of system and direction in all overhaul operations. Hose lines and equipment no longer necessary, either for extinguishment or standby, should be removed, and with the least possible disorder and confusion.

Naturally, overhaul does not wait until this has been accomplished, and the stage is set for it, and for salvage. Overhaul should be going right on while this transition is taking place. Of course, provision should be made for standby hose lines or extinguishers, and the necessary tools for overhaul, close at hand. But the point is to get rid of unnecessary fire forces, and spectators, at the earliest possible moment.

In overhauling such occupancies, where firemen are working in rooms containing furniture, such as bureaus, dressers, etc., upon which are jewelry, knick-knacks, pocket books, or the like, the proper thing to do is to open available drawers and place these articles inside. This preferably should not wait to be done by salvage crews. Where ceilings, floors or walls are to be opened up for overhaul, the furnishings should be moved out of the way to locations

where they will receive the least damage. If covers are available, so much the better, but it is difficult in some small, confined occupancies for salvage crews to team up and operate alongside the overhaul forces.

Here are a few high spots concerning overhaul in this and related types of occupancies:

When overhaul operations are started, only enough lath and plaster or metal ceilings should be removed to make sure that fire has not extended. Fire in concealed spaces can often be detected by (1) feeling with the sensitive part of the hand; (2) smell; (3) sight (discoloration of surfaces or blistering). Where it is necessary to remove curtains and drapes or hangings, these should be taken down carefully and not yanked—pulling down the entire fixture. Much the same applies to removal of paintings and pictures.

Burned clothes, cushions, etc., should be placed in a bath tub, sink, wash tub or other receptacle and dipped, or soaked in water if there is any evidence of fire still burning. Cotton or kapok matresses, excelsior, pillows or parts of overstuffed furniture should be removed to the outside unless only small portions are burned, in which case they can be pulled apart and placed in the wash tub or bath tub. Of course, if "wet water" is available for the purpose, it should be used on such materials. Before placing the materials in the bath tub or wash tub, it is good practice to first place a salvage cover in the tub so that the finely divided fibres will not clog the drain and possibly do damage to the plumbing. Beds can be taken down and removed to safe areas. In so doing, it is well to use care. Many men have suffered burns handling hot metal articles after a severe fire.

General Rules and Recommendations

Overhaul is functionally closely related to fire extinguishment and salvage. Careful, efficient overhaul furthers both extinguishment and salvage. The point should be kept in mind by officers and men doing fire duty.

Be particularly alert for evidences of arson, especially in small retail occupancies.

Preserve and safeguard any evidence of incendiarism that may be encountered. Check the building, particularly during overhaul operations (windows and doors, etc.) for any evidence the structure may have been entered prior to the fire; notify the officer in command of any such evidence. Also, check to see if there is any evidence of theft of building contents, prior to or during the fire.

Officers and members of engine companies should cooperate with crews of ladder companies, during overhaul operations, to see that such work is completed with dispatch, and with the least possible damage to building and/or contents.

Officers should keep the men of their companies under personal supervision unless a superior officer may require them at another part of the building. Men should not be permitted to roam around the different floors; company commanders should be held to account for actions of their men during overhaul.

Special care should be taken in handling all articles which appear to have great value, such as heirlooms, to protect them from damage or further loss.

At all overhaul operations each member of operating crews or teams should endeavor to salvage every article that he can by placing it where it will be removed from further destruction.

Unnecessary water damage must be avoided by placing leaky nozzles in bath tubs or pails, or out of windows. Leaking hose connections should be located and tightened. Hose lines should not be so placed that any sudden movement, such as, reaction to nozzle opening or shutdown, may result in damage to building or contents.

While overhauling, especially in business occupancies, do not allow unauthorized persons in the premises. Do not permit the removal of any stock records, or books, unless permission is granted by the chief officer in charge.

If the electric wiring has been exposed to fire or other damage, the system should be de-energized by pulling the main control switch. It may be advisable to have the electric service company cut the service lines to the building.

Much the same applies to natural or artificial gas. If this is supplied to the building and piping and appliances have been exposed to damage, the service should be cut off at the street supply valve. Under no circumstances should such service be turned on again by members of the fire department.

In case the building is equipped with automatic sprinklers, all fused heads should be replaced and the system restored to operating service if this can be done readily.

Do not work men too long in an atmosphere where gaseous products of fire are present. Men should be relieved frequently and sent to the outer air to "get a blow." As previously mentioned, proper respiratory equipment should be worn by all men overhauling in areas where there are, or may be, toxic fumes.

Overhaul crews should cover the *complete area* of the fire, paying special attention to its edges and possible extensions. Diligent search should be made for fire in concealed spaces and in channels through which fire can communicate to exposures.

As a general rule, confine all possible overhaul to the interior of the building. Remove to the outside only such material as is necesary to make way for thorough inside overhaul. And endeavor to confine this material to the smallest possible area, and in neat piles.

Where possible, use debris carriers or containers, to remove materials which contain or may be thought to contain articles of value.

It is essential that men doing overhauling should wear the proper fire clothing. Many departments insist that boots contain metal insoles. Some go so far as to provide crews with goggles and special face shields. The custom of equipping departments with protective clothing and gloves (i.e.: aluminized asbestos, etc.) is growing. It is a standard rule in many departments that men must wear protective hand covering during this operation. Incidentally, any injuries, even minor scratches, incurred during overhaul should have immediate attention.

When holes are cut in a floor for distributors, or cellar pipes, or to relieve the floor of water, the openings should be covered by placing chairs, boxes, or other obstructions in or over them.

In some occupancies firemen will encounter pails and other vessels marked "Fire." Such containers are presumed to contain water. Care should be exercised in using such vessels, especially in occupancies where volatiles are used. It has sometimes happened that these containers have held gasoline or some other volatile mixture, and using them without first making an investigation may be dangerous.

In opening up baled cotton, paper or rag stock or other fibres, there is danger of the metal bands flying up and striking men in the face. The proper way to cut open bales for examination is to cut the outside (end) wires first and the center wires last. In so doing it is well to make sure no men are within range of the severed wires.

Where axes or picks are used in overhaul, care should be taken to see that men using them have room to swing them without endangering other persons who, in any case, should be instructed to remain at a safe distance. Firemen using hooks also should consider their teammates.

When removing doors, window frames, shutters or cornices, or cutting up roofs, care should be taken not to

(*Continued on page 375*)

There's little to be salvaged here, as fire fighters overhaul to catch the hidden sparks and embers. Down below, however, salvage corpsmen have covered household possessions. Overhaul and salvage can, and should go hand in hand.

Dayton F. D. Dramatizes Household Hazards

The "House of Hazards" Proves Big Factor in "Selling" Public on Fire Safety

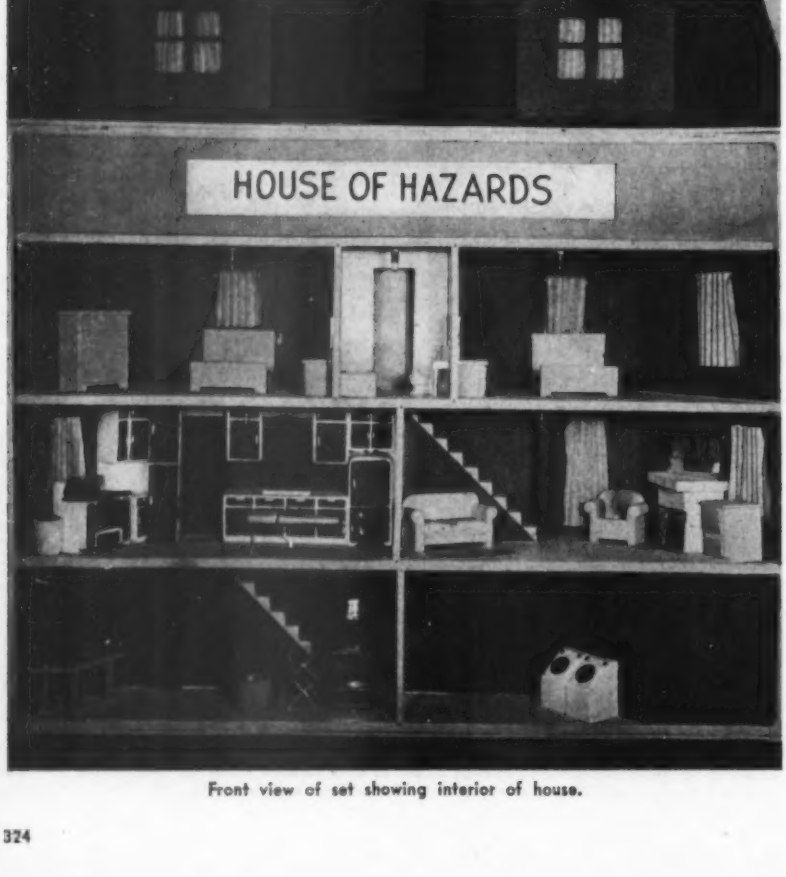
Editor's Note: A short time ago, a national magazine published a pictorial story about the "House of Hazards", a novel "instrument" for dramatizing fire hazards in the home with the idea of saving lives and reducing the nation's dwelling fire loss.

Since publication of that story, and as a result of other publicity arising out of widespread showings of the "House of Hazards", the requests for information and for further showings "have been terrific", according to Fire Chief Forrest B. Lucas of Dayton, Ohio. In the first five months following its introduction, 28 showings were held, with attendance running from 60 to as high as 212 per showing.

Primarily intended for use before boy and girl scouts, elementary pupils, and PTA's, oddly enough the demands for displays have been most heavy from adult groups, many of which, Chief Lucas says, have been volunteer fire department associations.

The editors are grateful to Chief Lucas, and to District Chief Carl L. Shields, head of the Division of Fire, Fire Prevention Bureau, who developed the idea, for permission to tell the story of the House of Hazards, and for the excellent illustrations which accompany it, taken by the Fire Department's own photographer.

THE House of Hazards unit overall measurements are 42" wide, 42" high and 9½ deep. The end walls of the model house are angled to provide better viewing to assemblies in auditoriums, etc. The house sits on its own stand which places the bottom or basement section of the house a minimum distance up from the floor of 35", to 77" from the floor to the peak of the roof. The house contains 6 rooms, a bath and finished attic.



Front view of set showing interior of house.

The model has its own lighting system on a 6-8 volt circuit from a transformer contained in the model, supplied from 110 volt circuit. A 28-30 volt circuit is used for the heater elements which ignite the various fires. The 28-30 volt circuit also provides power for a fire alarm placed in the house and is used to power the motor which drives the roller screen beneath the attic section which carries 24 subject lines. The various fires throughout the house are controlled by 36 electrical circuits operated from a remote control panel.

The model house, as well as the furnishings, is constructed on an approximate 1 inch to 1 foot scale, the furnishings themselves being made primarily from solid wood, either covered with asbestos or painted with fire resistive paint. The furnishings are rather crude in that scaled detail furnishings would not withstand the temperatures involved, although when viewed from a short distance they appear to be very much in detail. The walls of the house are painted dark, heavy colors so as to afford the greatest possible viewing distance, which is set at approximately 50 feet maximum. The house carries its own lighting system and works better from a viewing standpoint if demonstrated in subdued light.

Bedspreads, curtain materials and other combustibles used in the house are paper napkin material.

Among the 22 fires from common causes which can be visually demonstrated in the house are—

- Bed fire and chair fire from careless smoking
- Additional bed fire or curtain fire from children playing with matches
- TV fire and curtain fire to the rear from defective TV wiring, inadequate ventilation, etc.
- Small rug fire in front of the fireplace from improper fireplace screen
- Refrigerator compressor fire (mostly older types) from inadequate ventilation, poor maintenance, defective unit or wiring, etc.
- Ironing board fire from leaving iron unattended, no iron stand, not thermostatically controlled, etc.
- Dust mop in broom closet, spontaneous ignition
- Burning meat in oven (smoke only)
- Grease fire on stove top extending to curtain which is directly above the stove
- Waste paper basket fire from emptying ash trap or not making sure match is out before discarding
- Soldering iron on work bench fire, left unattended, not placed in proper holder, etc.

Ashes in combustible container and clothes drying rack too close to the furnace

Fire in newspapers improperly stored or bundled in the basement from cigarettes, etc.

Closet fire resulting from break-down of electrical circuits due to overloading

Fire in basement closet from improper storage of paint cans and rags, spontaneous ignition

Chimney fire in defective chimney, overheated chimney, etc., which results in fire communicating to one attic dormer then to the other attic dormer, involving curtains and contents.

The usual procedure with each fire demonstrated is to generally discuss the many common causes which might have started such a fire. For example, as previously stated under TV: The cause could be a defective TV set in itself; it could be a home "handy repairman", leaving off the protective paneling, which would allow conductive lints to settle; maybe the owner, himself, made improper repairs; or the wiring from the TV chassis to the room outlet could become deteriorated and cause a fire. Many times TV sets are permanently built in homes without adequate ventilation. It is unwise to place radios or TVs in front of drapes or curtains, etc. Possibly 10 different sources of ignition could be applied to almost every one of the fires that occur in the house.

The flammable liquids demonstration is the most sensational, being illustrated from the standpoint of home dry cleaning with gasoline or similar hazardous solvents in the bath tub. The vapors flow to a candle in the fireplace and flash back to the bathroom. The same illustration is done in the kitchen where dry cleaning is done in the kitchen sink, the vapors travelling down the basement stairs to the furnace and flashing back.

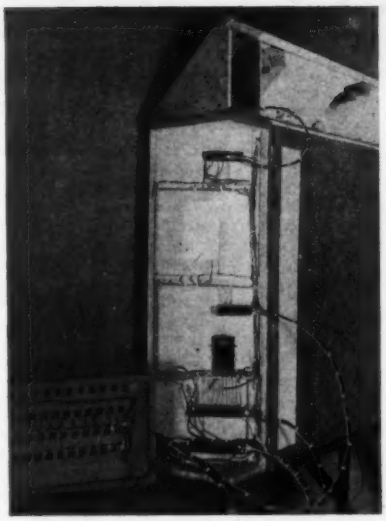
The knowledge gained by viewers of the demonstration is that it takes no more flammable liquids than a lady's blouse, man's sport shirt or similar piece of wearing apparel will hold to create enough vapors to flow to a potential source of ignition and ignite.

Additionally, people do not realize just how much fire a lace curtain will make when it burns. Therefore, when the tissue curtain burns in the bedroom, ignited by children with matches (supposedly) the volume of fire that the viewers see in the demonstrated model would be proportionate to a fire in their own homes.

The subject material that rotates on the linen screen contains some fire loss statistics for the previous year with the numbers of fire occurring in each individual occupancy daily. In audience participation, the viewers guess the number of fires occurring each day in different types of occupancies.

The 5 major causes of fire are also mentioned on the subject lines. This particular part of the demonstration is used in this manner for home clubs, P.T.A., student assemblies, etc. The subject material is changed according to the type of group viewing the demonstration, the element of time is also changed. For home safety groups P.T.A. groups and student groups, for example, the demonstration runs an hour and 15 minutes.

For noon-time clubs and like groups, the demonstration consists only of a brief explanation of the intent and purposes of the unit and how it operates. This can be cut down to as little as 15 minutes. Inasmuch as the fire prevention bureau deals with so many different groups, ranging from grade school students to adults, it is impossible to use a prepared outline, other than just a brief listing of the fires; the demonstrator inserts what he thinks will fit the particular needs of the group.



Some wiring details of "House of Hazards."

House of Hazards Description

The "House of Hazards" is constructed on a scale of 1" to 1', for an overall width of 42" and overall height of 34" (exclusive of the attic section). Depth is 9½" including back panel. The lid or face panel will add another 1¼" to the depth. The lid, or face panel, is attached for transporting by means of suitcase catches. The end panels are ½" which are removable and are equipped with garage door handles to carry. Back panels are also removable and are ¼" plywood (3 sections). The lid or face is ¼" plywood with 1" x ¼" rails. The floor stock is ½" kiln dried white pine. Partitions may be the same or ¼" plywood. Glass partitions with slotted front rails are used to separate the first, second and third floor center, so that persons viewing from the side can get a full view. Glass partitions and slotted stop rails are used on the room side of the stairways to control the flow of vapors. Walls on each side are installed at an angle to give wide viewing from a short distance in front of the house. The finished attic section is constructed separately so that the main body of the house may be transported in a passenger car or may be constructed as part of the house. The roller, screen and mechanism is located in the main body of the house at the top. The outline panel is held in place by a friction clamp.

The roof section is constructed on an angle and is partitioned off in the interior on the left and right walls to either side of the dormers, removal panel on the rear. The exterior of the house is covered with leatherette, using linoleum paste as an adhesive. All walls and furniture of the interior of the house are covered with 1/16" soft pressed asbestos paper, using paper hangers paste as an adhesive. Curtains and bedspreads are folded paper napkins. Curtains are hung in place by running a thread through the folds and attaching to small brads to each side of the window opening or simulated opening. Throw rugs on the floor are cut from heavy cloth. Furniture is made from solid stock, hollowed out where elements are placed, and interior covered with asbestos where fire occurs. Walls and floor are colored by use of showcard paint. Very dark colors should be used to afford greatest possible viewing distance and for good photographic purposes.

Furnace Room—Basement

The furnace was constructed from a 2-lb. coffee can having doors that will open. A candle, ½" high, is placed in the ash box to ignite the vapors which flow down the stairs from the kitchen sink. A slot is cut in the furnace at the rear approximately 1" high and 1½" wide to permit the vapors to reach the candle. This slot has 1" wing metal boards which extend from the furnace rear each side of the glass partition on the right and the bottom of the stairs on the left. These tend to guide the vapor through the opening to the candle. The stairway has a glass partition across it for this same purpose. The wood post can be seen where the glass stops directly over the furnace. The face board of the stair is slotted for the glass to slide into. The stop is also slotted. The clothes rack beside the furnace is made in two sections so the resistance wire can be connected across, and each side be connected to the electric circuit which enters at that point from the floor. The ash basket, left to the clothes rack, is made from a paper roll core, asbestos lined. The resistor wire is coiled inside the basket. To the rear along the stairway face board is a resistor wire coiled on the floor. This can be used to simulate a trash fire by putting small pieces of tissue over the resistor wire. The work bench is constructed off square to blend with the wall angle. The top is cut out approximately ¾" x ¼" for the resistor wire. Tissue paper is laid over the resistor wire. The closet under the stairway has a hinged door and the resistor wire is stretched from one side to the other near the floor level. Approximately 4" above the resistor wire is another (uncharged) wire so that pieces of tissue paper may be hung over it and hangs down close to the resistor wire. Flash paper is laid on the resistor wire, which ignites the tissue hung over the higher wire. This fire is to simulate a fire when the circuits are overloaded. An electric service panel should be placed on the stairway face wall, right of the closet door.

Laundry Room

Washer and drier are not wired. In the comment, however, proper grounding is urged. Closet arranged same manner as the closet in the furnace room. A kerosene rag is laid over the resistor wire to generate a large volume of smoke. Two scale paint buckets are placed in the same closet so they can be removed with the kerosene rag to demonstrate spontaneous ignition.

Transformer Room

The transformer is salvaged from a pinball machine. It operates on 110 volt,

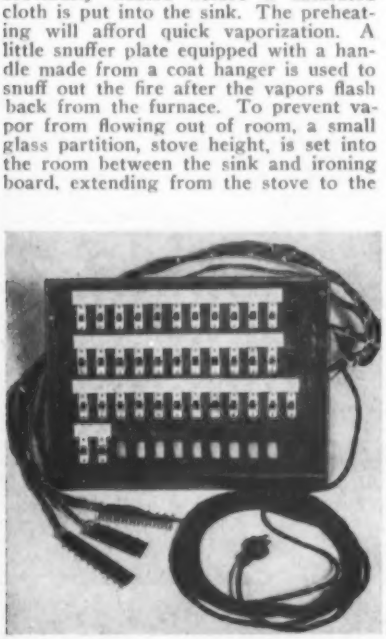
60 cycle A.C. and provides 6-8 and 30-32 volts. All lights and resistor wires require 6-8 volts. Motors for screen drive and tapper bell and motor require 30-32 volts. Fuse protection is provided on distribution circuits only. Screen is painted dark to defeat seeing transformer too easily, although it can be seen in the photograph.

Front Room

Fireplace and TV are constructed out of square to blend with wall angle. Fireplace is hollow which permits candle to be placed inside. It is open in the back so the candle can be lighted and provide escape of smoke. Resistor wire is coiled on floor in front of fireplace. Linen rug is placed over it to simulate sparks from fireplace. TV set is hollow to provide space for resistor wire over which flash and tissue paper are laid. Fire communicates to curtain in rear. The chair in the living room has a hollowed-out seat section. Resistor wire is strung side to side. Curtain at left side rear of chair can be ignited, also with chair fire or pulled out and the curtain ignited when home dry cleaning is done in the bathroom, when flash fire travels from fireplace to bathroom. Davenport is not wired. TV and chair have excess wiring from TV and chair to terminal block, which is mounted in the wiring compartment back side of angled wall. This permits chair or TV to be moved a short distance to service or clean. When in proper position, excess wire is pulled into the wiring compartment.

Kitchen

Kitchen cupboards top and bottom, also cupboards to the left of the basement door and stove are held in place by means of screws in a subpartition to the rear and end. This permits any of the units to be removed easily for service and cleaning. The kitchen sink is made of copper sheeting 1" wide and 1½" long and ½" deep. Twin heating elements are under the sink, which is previously heated before a saturated cloth is put into the sink. The preheating will afford quick vaporization. A little snuffer plate equipped with a handle made from a coat hanger is used to snuff out the fire after the vapors flash back from the furnace. To prevent vapor from flowing out of room, a small glass partition, stove height, is set into the room between the sink and ironing board, extending from the stove to the glass partition on the right. An additional ceiling light is provided over the sink behind a valance board. The bottom of the refrigerator is hollowed out with a removable door. Kerosene rag is used over resistor wire to create smoke. On broom closet, left side of basement stair door, both sections hinged to open once. Resistor wire is placed in bottom of closet and kerosene-soaked dust mop, made from cord string and small dolpen set head rests on resistor wire. Wastebasket at left of stove has resistor wire coiled inside same as trash basket. The kitchen stove is made from four ½" boards, box effect, with a back board carried higher so small strips may be nailed to it representing a built-out back. The oven section is partitioned off from the top with copper sheeting, which creates a space approximately ½" under the top burner plate. Resistor wire is placed in the oven, which has a hinged door, and kerosene is used here for smoke. A resistor wire is placed in the area provided under the top burner plate. Approximately ½" clearance is left between the top burner plate and back wall of the stove so that flash paper may be laid across the resistor wire and extend up between the burner plate and back wall of the stove to ignite gasoline placed in a miniature skillet. Notice paper behind the skillet in the photograph. Curtains can be set afire by a small rag laid across the top of the stove over the skillet location or by leaving a small opening in the back wall of the stove. The ironing board stand is made of No. 12 copper wire on which is mounted 3/16" plywood board with the center cut out for installation of resistor wire. Vertical legs of ironing board are not connected, so that current can be carried up each leg to the resistor wire from the floor of the house.



Control board of "House of Hazards."

Right Bedroom

The window (right angled wall) is recessed to permit installation of resistor wire in the bottom of the opening. A miniature doll is used here with a safety match fitted into a wire bracket on her arm and the match extended through a slot into the curtain touching the resistor wire. The center of the bed boards are cut out to permit installation of resistor wire. Both beds are made the same.

Bathroom

The bathroom tub is made with a copper tank and twin elements underneath in the same manner as the kitchen sink.

Attic Section

Resistor wires are placed on the floor in each dormer under the curtains so that they can be ignited carrying fire to other tissue paper laid on window screen wire which extends across the dormer in the gables. The gable roofs are cut out to permit flame to shoot up through the opening. Chimney fire is arranged and ignited in the same manner.

Electric Wiring Installation

All electric wires are laid in saw curf marks either in the floors or ceilings. Curf marks should be deep enough to insert wires fully and should be deepened at each point where the glass partitions are installed. Double check this for possible danger of cutting the wires when the glass partitions are slid in. The curf marks are arranged to run lengthwise of the house to the exact point where wire is to be attached to the heating element in the furniture, etc. After all wiring has been laid and sufficient amount of wire bent straight up from the curf mark, sheet asbestos is applied to walls, floors and ceilings. Furniture can then be installed and wired.

All electrical leads enter the floor or ceiling. Curf cuts run from small holes drilled in line with the curf cut through the angled partition right side. Pinball wire connection blocks are mounted on the back side of the angled walls to connect the various circuits to the control panel. It will be noted that three bus bars are provided so that one side of all lighting can be attached to one circuit. All heating elements (one side) can be attached to the second bus bar or second circuit. On 30-32 volt circuits, one side is attached to the third bus bar and the other to third circuit. The reason for using the bus bar arrangement is that by installing three duplicate bus bars in the control panel, only one heavy connecting wire for each circuit on one side is needed, thereby eliminating two wire runs to each individual switch. Circuit #1 and #2 are 6-8 volts. Circuit #1 consists of all lighting circuits except the closet fire in the basement furnace room. This circuit is equipped with an "on" and "off" switch to control the whole circuit. This is necessary to explain the overloading of the circuit as by turning on all the lights, and you can simulate fuse failure by the "on" and "off" switch. After a penny is installed in the fuse block, all lights can be turned on and apparently not blow the fuse; at this point the closet switch is thrown and fire occurs in the basement closet from a breakdown in wiring.

What's "Par" in False Alarm Punishment?

Charles Parr, 36, resident of Paterson, N. J., arrested for sounding a false alarm of fire January 5th, last, was sentenced to one year in the county jail by Magistrate John A. Masiello the following day. That seems to set a new par in penalties for shooting false alarms.

Parr pleaded guilty to the charge. He was arrested when a woman reported seeing him pull the alarm box at Main Street and Broadway, Paterson. Battalion Chief Joseph Dayspring, who preferred the complaint against Parr, said the latter was standing about 50 feet from the box when firemen pulled up. They asked him where the fire was and he replied "140 Water Street." Firemen went to that address but found no fire.

It was then the woman told of seeing Parr pull the alarm. He was arrested by a motorcycle officer and brought before Magistrate Masielo the following morning.

This is the same magistrate who has made headlines in FIRE ENGINEERING before for his "get tough" policy with false alarmers. He is one magistrate who knows all the evils false alarms can create and, according to Fire Chief G. Hobart Strathearn, of Paterson, he is cooperating 100 per cent with the fire department to eliminate the trouble.

SAN FRANCISCO COMPLETES NEW FIRE SERVICE TRAINING CENTER

Fire College and Drill School Combined in Well-Designed Institution

By J. C. Connell*

AN event long anticipated by the San Francisco, Calif., Fire Department took place recently when it occupied and placed in service its new Training Center. The occasion marked the consolidation of all the training facilities of the Fire Department which heretofore have been conducted under the handicaps of inadequate and widely separated establishments, and signalized the culmination of original planning by the late Chief Edward P. Walsh, the subsequent expansion and development of the program taking form and substance under the direction of Chief of Department Frank P. Kelly. In addition to the Training Center, enlarged and modern quarters are provided for several fire companies previously occupying older buildings nearby.

Until about four years ago, the Department had in service a Drill Tower and Yard not far from the site of this new one. The location was directly in the path of a projected Freeway so that in due time the property was taken over by the State for that purpose. Meanwhile, and since 1947, the Fire College has occupied makeshift classrooms on the campus of the City College of San Francisco. Following the loss of the Drill Tower property to the State, all training activities were transferred to the grounds surrounding the Fire College, the Department contenting itself with a situation completely unsatisfactory but beyond its control, in the knowledge that better days were coming.

With the purchase of the site at 19th and Folsom Streets (185 x 245 feet), there emerged a program characterized by a high degree of forethought and foresight, resulting in the splendid buildings and facilities that meet the eye today. The Training Center is well adapted to its purpose; it is built on more than an acre of ground, centrally located, and is favored with the best weather conditions to be found anywhere in San Francisco.

Three elements are embodied in the general plan: a Fire College and a Drill Tower with an extensive Drill Yard adjoining, these two combining to form the Training Center, and a Fire Station. All buildings are of heavy reinforced concrete construction.

The building assigned to the Fire College is a one-story unit, structurally apart from the Fire Station, possessing an individuality in plan and design. It is intended primarily for classroom instruction, although some drills may be held indoors during inclement weather by removing the folding chairs from the large classroom, which is designed to seat up to 180. The classroom can be divided into two rooms by use of a folding partition. A full chemical sink, with gas and electric connections and ample cupboard space, facilitates chemical demonstrations, for which a ceiling exhaust fan provides fume removal. Storage room is available for the folding tablet-arm chairs and other equipment as required.

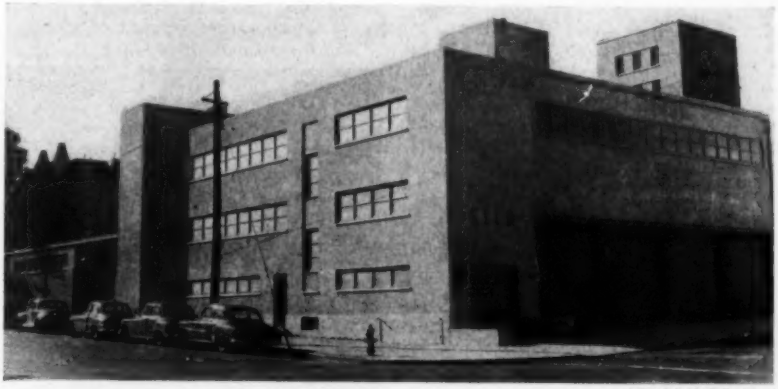
Other Fire College features are a well-equipped darkroom and photo laboratory for visual aid work, a reference library, office, washroom and kitchen facilities.

The Drill Tower is a seven-story and basement structure, faced with brick to match the Fire College. It is provided with the fire protection devices usually found in modern buildings: standpipe, both wet and dry; approved sprinkler system with waterflow alarm and valve supervision; various types of automatic fire detection systems; fire escape, etc. Doors and windows of different types are installed in the building for training purposes.

Of particular interest is the smoke and heat generating system. A modern high-test gas furnace provides the heat, and the smoke is supplied by a special smoke generator, which burns sawdust. Both heat and smoke are generated under controlled conditions, and the danger of a smoke explosion, or "back-draft," has been eliminated. The heat and smoke, either separately or in combination, are piped into the smoke and sprinkler room, which is used for simulated basement fires and for the testing of sprinkler heads, circulating nozzles, cellar pipes, etc. Immediately adjoining, and also located in the basement, is the observation room. Here the smoke room controls are located, and the sprinkler room can be observed through very large windows in the dividing wall.

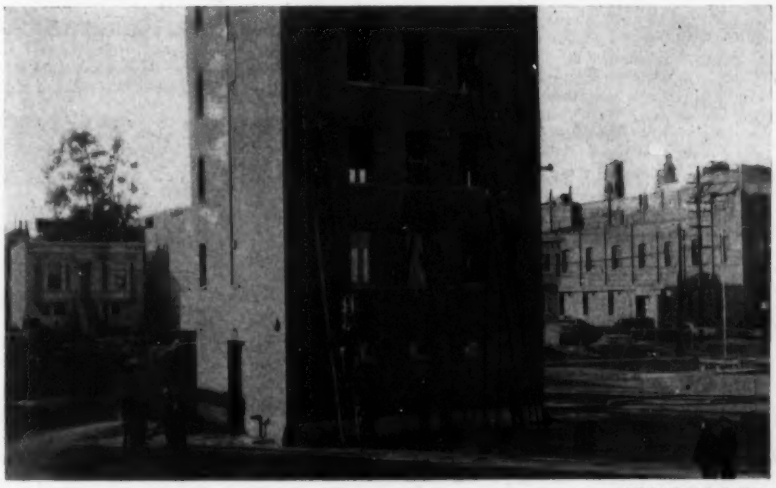
Each floor of the Drill Tower is provided with adequate drains to carry off the discharge from hose streams. Also located on each floor are connections to an intercommunicating system, with the main control on the ground floor. A man-lift has been provided between the first and seventh floors with stops at each intervening floor. Use of the man-lift is restricted to staff members and trainees participating in pompier ladder drills.

A novel feature of the new Drill



Official S. F. F. D. Photo

View of fire station showing fire college at left and drill tower in right background



Official S. F. F. D. Photo

Close-up of tower showing traveling "window" in wall on left, drafting pit at right

*The author acknowledges statistical data by Battalion Chief William Gilmore, in command of the Training Division, S.F.F.D., and photographs by Lieutenant Gino Pera, S.F.F.D.

Tower is the traveling "window" which is mounted in a track in the brickwork and which travels on a cable between two pulleys. The "window" is operated by an electric motor and may be stopped at any point within its limits of travel, thus eliminating one of the "pat" features of the average ladder drill. Hose, when not in use, is hung vertically in a hose well built into the Tower.

The Drill Yard is equipped with high- and low-pressure hydrants, improved drafting pit, anchors for the safety net used in pompier ladder drills, and utility shut-offs of various kinds for training purposes. The entire Yard is paved to standard street specifications, and drainage is ample for use of heavy stream devices.

The Fire Station occupies the corner two-story building, with the apparatus floor facing 19th Street. Five overhead doors, which may be opened simultaneously or separately from the watch desk, provide exits for the companies housed here—Engine 10, Truck 7, Tank 11, Hose Tender (H.P. Battery) 6 and Salvage 4. The Station will also be the headquarters of the Assistant Chiefs in command of Division 3.

Along the east or Folsom Street frontage is a mezzanine on which there are an office and quarters for the Division Chiefs, and quarters for their operators and for some of the company officers. Also located on this mezzanine is the automatically controlled heating and ventilating equipment and other mechanical installations.

A spacious and tastefully decorated dormitory for the men, with separate rooms for company officers, occupies the entire second floor. Every convenience has been introduced for the comfort and welfare of the 66 officers and men who will be stationed here during their respective tours of duty. There is locker and storage space in abundance.

The watch desk is located in the large recreation room on the apparatus floor at the rear, or south end, of the building. This room opens out on a patio. A kitchen and dining section is part of the larger recreation room but may be curtained off with a sliding partition. The floor of this entire area provides radiant heat.

A hose tower 20 x 20 feet and rising to a height of 65 feet can accommodate upwards of 3,000 feet of line. It is equipped with an electric hoist on a traveler to expedite the handling of hose. Access to the tower may be had through oversize doors on the apparatus floor as well as from the Drill Yard outside, or from the second floor dormitory. To assure maximum ventilation, a series of louvres on the west face of the tower are designed to take advantage of the prevailing winds.

Drying racks for salvage covers are set up in one corner of the Drill Yard and a large open storage cabinet within the building will hold several hundred spares.

Other Fire Station features are the building-wide public address system with its control at the watch desk, and the method of rapidly dispersing exhaust fumes from the apparatus floor through suction ventilators at the floor level.

The Training Center was designed and constructed under the supervision of the Department of Public Works of the City and County of San Francisco and represents a total expenditure of approximately $700,000.

DELAYED ALARM CONTRIBUTES TO HEAVY LOSS IN CULVER CITY

Plant Fully Involved When Department Arrived; Location Found by Tracing Source of Telephone Call

By Paul Ditzel

A SUBSTANTIAL delay in sounding an alarm for a fire in a rubber and asphalt products manufacturing plant gave Culver City, Calif., one of its largest losses in recent years.

The blaze which made necessary a second alarm assignment, plus two additional engine companies from Los Angeles, caused $63,000 damage to the Western Backing and Coating Company plant, 3512-16 Helms Avenue, Culver City.

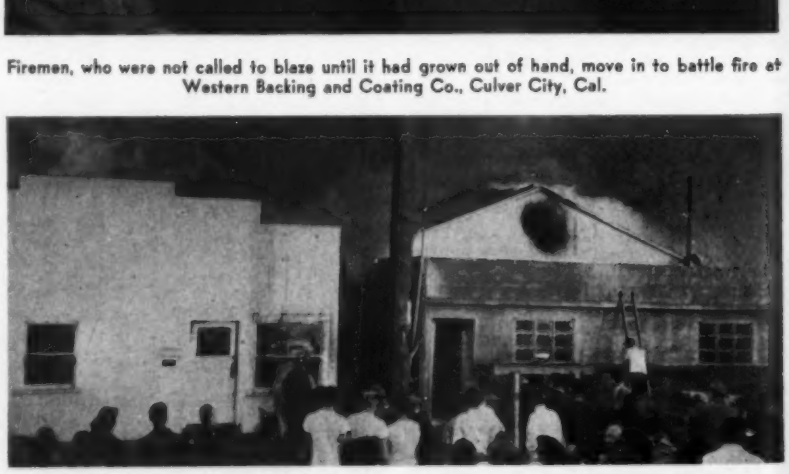
A telephone alarm was received at 4:40 p.m., February 18, 1955 in Culver City Fire Headquarters. The excited caller either hung up before giving the location, or telephone wires were burned through. The officer on watch immediately asked the telephone company to trace the call and a full first alarm assignment of two engines and a squad company was dispatched. Investigation later showed that workers in the plant fought the fire with a 1½-inch house line and two carbon dioxide extinguishers before attempting to turn in the alarm.

Assistant Chief Carl Burnett, who also responded on the first alarm, said "As we turned off Washington boulevard at Higuera street, we observed a large mass of black smoke and, assuming that we had a bad situation in front of us, I called Dispatcher No. 4 for a second alarm assignment.

"Upon arrival we found the factory fully involved and a strong wind blowing from the east, endangering homes adjacent on the west side."

The building involved was a 7000 square foot, one-story affair with corrugated iron walls and wood roof framing, also covered with corrugated iron. The unsprinklered building contained an underground storage of toluene and a number of drums of Cal Rubber No. 605c, and 606 Aeroduck, both chemicals carrying red labels. An additional 80 barrels were stored openly on the rear of the premises.

Firemen, who were not called to blaze until it had grown out of hand, move in to battle fire at Western Backing and Coating Co., Culver City, Cal.



Despite exposures and a strong wind, Culver City and Los Angeles firemen controlled this fire in building of origin

"I was on the first truck that rolled in," said Captain John A. Starke's report. "At the time of our arrival, all of the rear of the building was involved and it was evident that the fire had been burning for some time."

The second alarm at 4:42 p.m., called out John W. Kearney, Culver City Fire Chief, an additional engine company and later a city service rig. The massive black loomup was seen in Los Angeles, which offered assistance, per an informal mutual aid plan. The offer was accepted, and Westlake Signal Office dispatchers sent Engine 43 and 58 and two battalion chiefs.

A total of ten 2½-inch lines and a 1½-inch line were used in extinguishing the fire.

Subsequent investigation by Captain Starke placed the point of origin at a large coating machine about in the center of the plant. The workman operating the machine at the time of the fire said there was a flash, which he attributed to a spark caused by the friction of materials rubbing together. He admittad that he and others in the plant tried to put the blaze out.

Despite the intensity of the fire, the closeness of exposures and a heavy northeast wind, the fire was confined to the building of origin.

The last piece of apparatus remaining at the fire for overhauling returned to quarters at 12:09 a.m. the following day. Sources said the plant processed highly flammable materials for shoe backing and airplane fabrics.

At 6 p.m., while all Culver City units were operating at the fire, another alarm was received for a residence blaze at 4360 Mentone avenue. The fire was found to be in the kitchen and put out with a hand extinguisher.

Salvage a Major Problem at Clubhouse Fire

A stubborn, smoky fire, for which five alarms were sounded, caused at least $500,000 property damage to the George Devine ballroom in the Eagles' Club, Milwaukee, early on the morning of March 7, 1955. Most of the damage was caused by the intense heat, smoke and water, heavy volumes of which were necessitated to confine and finally extinguish the fire. The fire itself was held to the bandstand area at the south end of the ballroom.

The cause of the blaze was not determined, but according to Chief Edward E. Wischer, it might have been started by a smoldering cigarette..

The fire was discovered by a janitor, who was cleaning up on the first floor, when he smelled smoke. A search of the lower floor failed to disclose the fire, but when he investigated upstairs he found heavy concentrations of smoke, and immediately turned in an alarm. This was received by the Fire Department at 3:15 A.M.

The ballroom had been locked up at 1:10 A.M., after 1100 persons had danced there earlier Sunday night until midnight.

The Eagles Clubhouse, set well back from W. Wisconsin Ave., extends to W. Michigan St. on the south, with its east side fronting N. 24th St. It occupies about the eastern one-third of that block. The ballroom is located in what would normally be the third and fourth floors of the big clubhouse. The large

Photo by George Koshollek

Prompt removal of water from ballroom at Eagles' Clubhouse following fire materially reduced loss.

dome roof of the ballroom is suspended from cables attached to girders under the actual roof of the clubhouse. The club gymnasium and aerie (lodge room) together with cocktail lounge and restaurant, are located on the first floor, which has two story ceilings. Bowling alleys are located at the lowest level and a balcony circles the ballroom.

The Clubhouse, built in 1926 at a reported cost of $1,300,000, is valued presently at $3 million and is constructed largely of marble. Insurance of about $500,000 is carried on the structure and contents.

Battalion Chief Edward Jaroch, who responded with the first alarm assignment, called for a second and third alarm shortly after his arrival. Chief Wischer, who rolled on the second alarm, ordered fourth and fifth alarms. A total of 15 engines, 9 aerial ladders, a water tower, rescue unit and Department ambulance were at the scene.

The fire was under control within 40 minutes after the first alarm, but not until fire fighters had struggled strenuously with the handicaps of heat, smoke and toxic fumes. Another handicap experienced by the first-due units was the fact that upon arrival they found the iron gates on the wide-front stairway leading to the ballroom chained shut. They had to climb over these gates with their hose lines in order to attack the fire area from that approach.

The heat was so intense that fire fighters could not come to grips with the fire at the south end of the room. At first it was impossible to locate light switches in the intense darkness, and flashlights were of little value. However, as quickly as windows on the east and south sides of the ballroom were broken out, and openings made in the roof, men inside were able to advance hose lines into the ballroom to strike directly at the fire.

By the time this was accomplished, however, water was three to four inches deep on the hardwood ballroom floor, which is built two steps lower than the rest of the room around the floor. Water also cascaded down the steps and seeped through onto lower floors.

Streams were directed into the building from ladder pipes and the water tower, which operated in N. 24th St. Four aerials were located on W. Wisconsin Ave. to bring water to bear on the fire from that side. Hand lines, using fog and straight streams, were carried into the structure and upstairs to the ballroom.

As quickly as possible, firemen set about removing the water from the costly floors and furnishings. The suspended ceiling dome was badly scorched and cracked from flames at the south end of the ballroom but firemen succeeded in keeping it from bursting into flame.

(*Continued on page 370*)

Removal of water following fire at Milwaukee Eagles' Clubhouse proved a major operation. Crew in background sweep water out of ballroom.

TWO MILLION-DOLLAR FIRES HIT PENNSYLVANIA CITIES

Simultaneous Blazes Strike Carbondale and Shenandoah; Property Loss Heavy in Both

PROPERTY damage of between $4 and $5 million resulted when two fires on the same day, Feb. 4 last, wiped out parts of the business areas of Carbondale and Shenandoah. Fortunately no lives were lost but more than two score firemen received injuries or suffered from smoke inhalation.

In Carbondale, nearly 200 firemen from three Northeastern Pennsylvania counties battled to control a raging fire that wiped out 14 buildings, made 40 persons homeless and idled 300 workers in a dress factory, 28 businesses and a bank.

The conflagration was characterized by Mayor F. P. Kelly as the worst in the city's history. It is believed to have originated in Nolan's Men's and Boy's Shop at 51 Salem Ave. The first alarm was telephoned to the Columbia Hose Company, one of the city's three fire organizations, about 4:00 A.M. and was followed by three additional alarms within 10 minutes. Aid from every fire company in the region was requested by Carbondale's Fire Chief Joseph C. Healey.

Chief Healey's request brought prompt response from fire forces of Simpson, Mayfield, Childs, Olyphant, Peckville, Jermyn, Archbald, Dickson City, Forest City, Vandling, Throop, Honesdale, Scranton and Dunmore.

Scranton's 100-foot aerial was dispatched to Carbondale at about 11:00 A.M. on the request of Mayor Kelly. There was some delay encountered in sending it until Mayor J. T. Hanlon of Scranton had approved its release.

The fire, which was out of control when firemen arrived, spread rapidly and fanned from building to building, aided by a strong north wind. So great was the heat generated that firemen were unable to hold their positions with hand lines for any length of time. On several occasions they were forced to drop their lines and run for cover when buildings collapsed, clogging the streets with debris and fallen wires.

The area involved by the fire was bounded by Salem Ave. from Church St. to Main Ave.; Church St. from Salem Ave. to the center of the block below Lincoln Ave.; Main St. from Salem Ave. to the center of the block toward Lincoln Ave. In addition to the 14 business buildings destroyed, two others were badly damaged. Most of these structures were two to three stories, of brick joist and frame construction. Heaviest loss was felt by the Big Chief Market, a chain store over which was located the Weisberg Dress Factory, employing 200 persons. Another heavy loss occurred in the A. & P. Store, N. Church St., which was burned out.

At about 10:30 A.M. fire fighters believed they had the fire confined, but shortly afterwards the Big Chief Market became a mass of flames and firemen had to shift their lines to head off further advance of the flames up Main Street.

The fire was not reported under control until late afternoon, at which time crews of fire fighters from 14 other communities were all in action in the near-zero weather.

State Police were called to aid local law-and-order forces to maintain order, control traffic and prevent looting.

Shenandoah's Worst Fire Since 1883

As in the case of Carbondale, the cause of the conflagration that ravaged part of downtown Shenandoah was not determined. The fire was first discovered in the Keystone Home Furnishings Shop, 130 So. Main St., and the Aranoff Dry Goods Store, 132 So. Main.

A biting north wind fanned the flames in this incident just as it did in Carbondale. The temperature was at 4° F. and streams of water played on the inferno coated buildings, poles, wires, and fire fighters, with ice.

The first alarm was received about 2:50 A.M. and all five Borough Companies were soon in action. As one of his first acts, Fire Chief John Kayes called for help from neighboring fire departments, and companies responded from West Mahanoy Township, Mahanoy City, Frackville, Gilberton, Mahanoy Plane, Girardville, Ashland, Ringtown, Pattersonville and Brandonville.

Fed by the combustible buildings and fanned by the strong wind, the fire spread swiftly in both directions on South Main Street, destroying all properties from the Columbia Brewing Company loading platform down to the corner. The burned area included the entire block from So. Main St. just below Oak to Cherry, to Ferguson, and almost

Firemen advance with hose line while battling fire that destroyed some 40 buildings and left 300 persons homeless at Shenandoah, Pa.

Fourteen business establishments burned to the ground at Carbondale, February 3rd

to W. Oak. Only two buildings in the area were spared. Those razed on So. Main Street included a music store; men's furnishing store; furniture store; cafe; home furnishing store; dry goods store; confectionery shop; service station and a second cafe. Establishments burned on West Cherry Street included a beauty shop, barber shop and grocery store.

More than 100 persons in 44 families were left homeless by the fire.

The Bell Telephone Co. reported 92 lines and 130 stations knocked out of service by the fire. A crew of linemen of the Penn Power & Light Co. were called at 3:00 A.M., 10 minutes after the general alarm. They cut power lines which endangered fire fighters, as utility poles were burned.

Fire Chief Kayes was aided by all local fire marshals and visiting fire marshals and other officers in the 7½-hour fight to gain control of the blaze.

Notwithstanding the small army of firemen and volunteers at work, the icy condition of the area, and the inclement weather, only two fire fighters suffered injuries necessitating their hospitalization. One received a compound fracture of the skull when struck by flying glass and the other was overcome by smoke. Many fire fighters were treated at the scene for exhaustion but most of them returned to the fray after a change of soaked clothing and a warming out.

The total loss in this fire was estimated at approximately $2 million.

SIX FIREMEN KILLED WHEN WALL COLLAPSES AT BALTIMORE FIRE

Roof Drops Into Ruins After Wall Falls; Baltimore's Worst Tragedy

SIX Baltimore firemen, including a battalion chief, met death during a 9-alarm fire on Wednesday, February 16, 1955, that burned out two adjoining buildings at 507-509 E. Baltimore street. Some 22 other fire fighters received injuries, including Chief Engineer, Michael F. Lotz.

Stated as "the worst tragedy in the history of the Baltimore Fire Department," the fire originated in the three-story brick joist building of the Tru-Fit Clothes Co., 507 E. Baltimore st. Its cause was undetermined.

The fire was discovered about 9:00 P.M. by the doorman of the Flamingo Club, next door to the clothing store, who saw smoke coming from the upper windows. He ran around the corner and pulled the "house box" on the quarters of Engine Co. 32, Gay street. The "Alert" went out over the department "intercom" at 9:02, followed by Box 12, Baltimore and Frederick sts.

The crew of Engine 32 encountered heavy smoke conditions and donned masks in an effort to penetrate the charged interior of the clothing store. To ventilate, they started to break some of the show windows but an explosion of accumulated gases in the building blew out the front windows, sending a shower of glass and knocking out most of the crew of Engine 6. Most of these men, however, picked themselves up and returned to the struggle.

Despite the heavy concentration of smoke, men worked into the premises dragging lines, while fellow firemen laddered the structure to open up.

Chief Michael Lotz, who arrived on the second alarm, ordered his men operating inside the premises to work in short shifts. Hose lines were taken up ladders and onto roofs and streams directed into the burning structure as the stubborn fire spread through walls and partitions. At its height, it broke out of concealment and flared up to light the "Block area" of Baltimore street. These flames, however, were quickly beaten down by a deluge of water and, as they receded, fire fighters pushed their way further into the building.

At about 10:45 P.M. the fire was considered under control, at which time the last of the blaze was apparently centered in the rear of the basement, and the first of the crew members that had responded on the six alarms sounded between 9:06 and 10:17 P.M. were drifting over to the coffee wagon of the Box 414 Association for well-earned refreshments.

One group of about a dozen fire fighters had mounted the roof of a one-story rear addition to the clothing building on which ladders had been placed, resting against the brick wall of the second and third story and from which hose streams were being directed into the rear of the structure.

Without warning, a 30-foot section of the wall of the building collapsed inward, tumbling firemen whose ladders rested against it into the structure. Only moments later, the roof of the one-story building gave way, and the rest of the fire fighters were hurled after their comrades. Completing the grim tragedy, the roof of the third story then fell with a roar, tearing its way through the second story, plunging downward and burying firemen who had been flung into the ruins.

Just before the building roof caved in, some warning was shouted by firemen, which enabled those operating in the front of the structures to flee through windows and down ladders. Only those in the rear apparently were trapped. Those who "rode the roof" were for the most part only cut and bruised.

Immediately following the collapse, Captain Walsh, aide to Chief Lotz, called for a third alarm on Box 1222, an adjacent box on Gay street, near Baltimore. This made a total of nine alarms and brought much-needed manpower to the scene.

Fire fighters, who rushed into the wreckage even before the flames were fully extinguished, were at first unable to determine how many victims were trapped. A number of those who were involved in the collapse but were not buried in the debris, were quickly removed to hospitals. Rollcalls indicated that from two to six men were missing and believed buried in the wreckage.

Working in imminent danger of further wall collapse, in areas that made it difficult to employ many men, or mechanical aides, firemen dug frantically for victims. The voice of one man was reportedly heard, and the hand of one victim was quickly located. Moving bricks and pieces of timber one at a time, one living and two dead victims were removed. The survivor was Lieutenant Leonard N. Wiles, 31, of Ladder 6, who was extricated four hours after the crash, and sent to Mercy Hospital.

The first two dead removed were Battalion Chief Francis O'Brien, 52, of the 4th Battalion, and William W. Barnes, 41, Acting Lieutenant of Engine 17. They were dug out shortly before daylight. It was not until the next afternoon that three others were found. The final victim was removed about 7:30 P.M. the next evening. The last four were fire fighters Rudolph Machovac, 52, Engine 17; Anthony Reinsfelter, 31, Ladder 16; Joseph Hanley, Jr., 33, Engine 13 and Richard Melzer, 28, of Engine 15.

Chief Lotz, who was himself injured, reported he was completely baffled by the wall collapse.

"That wall looked as rigid as any I've ever seen," he is quoted as saying. "We never heard a sound . . . Why it let go I'll never know."

The chief, a veteran of 33 years, directed operations at the fire until he was knocked out by falling timber and brick. He said there were several indications that the store building was substantial enough for firemen to mount to the roof, where they were buried by the sudden cave-in.

First of all, the chief said, there was no smoke seeping through rear walls of the building. Such smoke escaping is the usual warning of weakened mortar or brick. Secondly, the chief reported that fire shutters on the rear of the building looked substantial and well kept, an indication the store was in good repair.

The chief said, "I was standing on the roof near Chief George H. Redmon. Six or seven men were near by. Redmon was getting ready to call for a hose line. The roof broke away and dropped like an elevator. We didn't have a chance to move a foot."

The chief plunged 10 feet to the first floor, narrowly escaping death.

Chief Lotz described operations immediately before the cave-in as an attempt to get through the rear of the building to quell flames the firemen had driven back from the street front. He said more lines were to be jammed through windows at the second-floor level in the rear. The one-story structure where the tragedy occurred had no entrances.

A terrazzo floor with a mesh under it made it almost impossible for firemen to break through to the basement source of the flames.

After his plunge, Chief Lotz and Chief Redmon mounted to safety on a ladder that was pushed down into the smoking store ruin. He sustained head abrasion, cuts and bruises in addition to a severe ankle injury.

In addition to Chief Lotz and Chief Redmon (5th Batt.) the more seriously injured included the following: Acting Deputy Chief Carroll Hand; Lieut. Wiles, Ladder 6: Edmund N. Dalton, Eng. 17; Lieut. Martin Demek; Lieut. Russell Franklin, Ladder 6; Lieut.

Robert McGinn, Eng. 23; and Fire fighters Eugene Fitzsimmons, Ladder 2; Edgar Scheydt, Eng. 26; Bernard Vane, Eng. 23; Frank Johnson, Eng. 2; George Wagner, Eng. 7; Fred Winterling, Eng. 9; John Reck, Eng. 29; Reese Gott, Eng. 29; Albert Urlahs, Engine 3 and Eugene Bolard, Eng. 2. Lieut. Russell King of Ladder 1 was injured later while digging for victims.

The tragedy brought out heavy complements of ambulances and medical aid, police and other emergency services. The Box 414 Association of fire buffs dispensed a total of 1280 cups of coffee; 500 cups of hot chocolate; 300 cups of soup; 50 doz. buns; 185 sandwiches; 400 cigarettes and 6 qts. of seltzer during its 24 hours of service.

Following the fire, the Fire Board named Deputy Chief Charles Theiss to head an investigation into the disaster. Deputy Chief Frank J. Trenner and Battalion Chief John D. Knorlein played important parts in the investigation into the cause of the fire.

DRY CHEMICAL EXTINGUISHERS HAVE INTERESTING HISTORY

Ten Companies Now Produce These Units; Many Individual Contributions to Increased Effectiveness

By Arthur B. Guise*

A DISCUSSION of the development of dry chemical as an extinguishing agent can very well start with a brief historical review because it is only in comparatively recent years that dry chemical extinguishing equipment has become important in the fire protection field.

Sodium bicarbonate, the prime component of dry chemical, was used for many years as an extinguishing agent dispensed from tubes. The Germans first brought out a gas pressurized unit which expelled a dry chemical under very high velocity. These extinguishers were not very effective on either Class "B" fires or Class "A" fires.

In the late 1920's, a gas pressurized dry chemical extinguisher was developed in the United States. This extinguisher utilized a dry chemical composed of sodium bicarbonate treated with magnesium stearate. A carbon dioxide cartridge was used to expel the dry chemical in a relatively narrow high velocity stream. Until 1940 there was no great amount of development effort to improve the dry chemical or to devise a more effective means of applying the dry chemical on a fire.

Beginning in 1940, research and development was started which resulted in an improved dry chemical in late 1943 and a more effective means of applying the dry chemical in 1945. Since 1946 there have been many new developments in dry chemical fire extinguishing equipment, contributions being made by a number of manufacturers not only in general design but also specifically in the means of pressurization and the design of nozzles for applying the dry chemical to the fires. The growth of interest in dry chemical as an extinguishing agent is probably best shown by the number of manufacturers of Underwriters' Laboratories listed dry chemical fire extinguishers:

In 1942, there was one such manufacturer,

In 1954, there are eight manufacturers.

*Director of Research, Ansul Chemical Co., Marinette, Wis. From a paper presented before the Fire Extinguishment Research and Engineering Symposium, held at the U.S. Naval Civil Engineering and Evaluation Laboratory, Port Hueneme, Calif., Nov. 16-18, 1954.

Arthur B. Guise

Forty years ago the Germans used a relatively coarse dry chemical containing 15% borax and a metal stearate to make it water repellent and free-flowing. The purpose of the borax was to melt and form a protective coating over wood so that the extinguisher would be more effective on Class "A" fires but in actual tests this has been found to be of questionable value. The dry chemicals produced in the United States from 1928 to 1943 did not contain borax but were otherwise similar to the Germans' dry chemical. In 1943 a dry chemical of finer particle size was produced and the extinguishing effectiveness was improved by about 50%. The former dry chemical contained only a relatively small amount of fine particles, only 22% passing through a 325 mesh screen. The average passing through a 325 mesh screen today is 72% based on the analysis of dry chemicals sold by ten manufacturers.

All of the dry chemicals now approved for use in Underwriters' Laboratories listed extinguishers contain metal stearates for water repellency and free flow. However, there are variations not only in the composition of the dry chemicals but also in their characteristics. For example, there may be a considerable difference in the rate at which dry chemical will flow. Tests have shown that one dry chemical may flow only two-thirds as rapidly as another dry chemical. If the dry chemical with a low flow rate should be used in an extinguisher designed for a dry chemical of high flow rate, the extinguishing effectiveness of the fire extinguisher would be appreciably decreased.

The early German dry chemical extinguisher did not have a hose, and the extinguishing agent was expelled through a fixed tubular nozzle at the base of the extinguisher. The first American models were equipped with a hose having a nozzle with a spring-closed valve and this improved the fire fighting effectiveness by increasing the ease of controlling the stream. At the present time only small extinguishers are manufactured with integral nozzles.

The early extinguishers were pressurized by carbon dioxide cylinders equipped with valves. Later the carbon dioxide cylinders were equipped with puncture disks but in the 1940's a number of models were introduced in which valve type operation was again used. One manufacturer uses a cartridge in which the valve is closed by the pressure of the carbon dioxide and opened by a trigger-actuated plunger. In 1950 the first stored-pressure dry chemical extinguishers were introduced on the market and since that time there has been a considerable growth in the number of stored pressure extinguishers manufactured. The first models used only nitrogen but several later models have been introduced which could use either dry nitrogen or dry air. The normal pressure in these extinguishers ranges from 150 psi to 350 psi, depending on the manufacturer's design.

New Models Introduced

All of the first dry chemical extinguishers expelled the dry chemical in a high velocity relatively narrow stream and early literature described the extinguishing action as being one in which the flames were swept from the surface of the burning liquid. In 1945 a nozzle producing a wider lower velocity stream was commercially introduced for use on wheeled extinguishers and a similar nozzle became commercially available on hand portable dry chemical extinguishers in 1946. In more recent years, some manufacturers have brought out other designs of lower velocity nozzles although some present nozzles produce high velocity streams. Many hundreds of fire tests have been made under standardized conditions using expert, instructed, and novice operators to determine the effect of nozzle design on fire extinguishing effectiveness on different types of fires. The results may be briefly summarized as follows:

1. The expert will do well with either a high velocity long range stream or a low velocity wide but not too short range stream on practically all types of flammable liquid fires.
2. The instructed operator will do best with the compromise between an extremely short and wide stream and the high velocity narrow stream.
3. The novice will do best on small fires in quenching oil tanks, tanks containing volatile flammable liquids, etc., with a compromise stream but will use the long range stream more effectively on spill fires.
4. All operators will more easily extinguish fires in gas escaping under pressure if they use the high velocity concentrated stream.

It is obvious that there is no one de-

sign of nozzle which is the best for all conditions of operator skill and type of fire. Accordingly, it is desirable to select the nozzle which will give the best stream under the conditions for which protection is desired. Some manufacturers of hand portable dry chemical extinguishers furnish their equipment with either a long range stream or a shorter range softer stream. Usually wheeled extinguishers are supplied with an adjustable nozzle which will deliver either a long range stream or a wide shorter range stream at the will of the operator. Because of the short discharge duration of the hand portable extinguishers an adjustable nozzle is not practical except in the hands of expert operators.

The rates of flow of dry chemical in present-day extinguishing equipment ranges from about 0.5 pounds per second for a 4 pound capacity unit to 7.5 pounds per second for the largest hose line nozzles and 25 pounds per second for truck turret nozzles. The latter nozzles have an effective range of 90 feet.

Up to 1948 the largest unit contained only 350 pounds of dry chemical. At the present time, the largest single unit contains 4,000 pounds of dry chemical. Large equipment required not only a complete study of the means of introducing the pressurizing and fluidizing gas into the large dry chemical container but also the development of means of subdividing the flow of dry chemical from the container to hose lines and turret nozzles in such a manner that the ratio of gas to dry chemical remained the same in order to maintain proper fire extinguishing effectiveness from all streams.

The development of dry chemical piped systems presented the same problem of flow of dry chemical through pipes. Not only was it necessary to determine the flow characteristics of dry chemical in pipes, from containers, and through nozzles, but also it was necessary to devise a means of using standard pipe and standard fittings so as to avoid the use of special equipment for dividing streams.

Dry chemical is essentially a mixture of finely divided solids suspended in gases, while flowing, and although it may be treated as a fluid in some respects, it is obvious that when the dry chemical flows through an elbow at high velocity the solids will be thrown to the outside of the curve so that there will be a separation of gas and solids. Should this not be taken into account in piping dry chemical, it is possible for the designer to obtain one stream which is very dense in dry chemical and another stream which is very gassy—and both streams are ineffective.

Where fixed nozzles were used in the piped systems, it was also necessary to determine the limitations on the application of dry chemical for flooding enclosed spaces and for the extinguishment of fires in open areas.

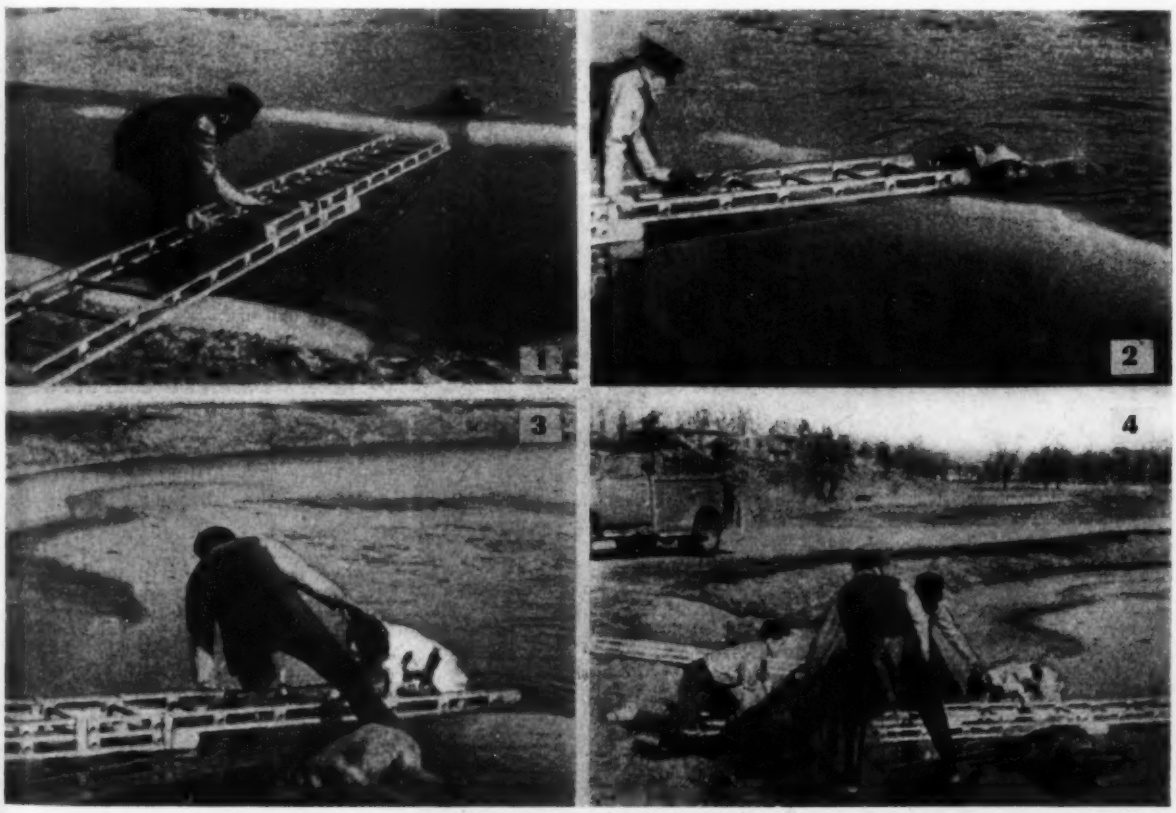
In order to be able to calculate the pressure drop in straight pipe, elbows, tees, and from nozzles, as well as determining the limitations for extinguishment of fires by piped systems, it was necessary to run over 1,600 flow and fire tests involving the discharging of over 300,000 pounds of dry chemical.

There has been an accumulation of data from field experience as well as from tests. At the present time there are a number of installations in which large units are used with fixed piping and hose systems for protection of large loading racks, pump houses, etc., a considerable number of 1,000 pound capacity fire trucks, and a few trucks having dry chemical capacity up to 4,000 pounds. Most of these mobile units are being used for airport protection although others are in use at refineries and chemical plants.

A number of dry chemical piped systems have already been installed for the protection of special hazards. The examination and testing of these systems by the Underwriters' Laboratories and the Factory Mutual Laboratories has been essentially completed and approval is expected in the very near future.

There is increasing interest in the extinguishing action of dry chemical. As was previously noted, about 25 years ago it was felt that the extinguishing action was due to a sweeping of the flame from the surface of the burning liquid. Later theories were that the endothermal conversion of sodium bicarbonate to sodium carbonate, water vapor, and carbon dioxide not only caused a cooling action at the point of combustion but also evolved inert gases at the point where oxidation

(*Continued on page 376*)



Cambridge Firemen "Going to the Dogs"

Literally and figuratively, Cambridge, Mass., firemen went to the dogs last February when two animals, a setter and a boxer, plunged through thin ice on a pond. The picture sequence shows their rescue. (1) Extended aluminium ladder is inched toward ice rim; (2) Fireman makes way to animals and returns safely; (3) with setter while boxer struggles to reach shore; (4) Other firemen aid in getting animals ashore—soaked and chilled—but happy.

Fire Wrecks Historic Wharf

Characterized by Boston fire fighters as one of the toughest fires they have had to fight in 30 years, a roaring blaze wrecked rows of buildings on the end of historic India Wharf, on Boston's waterfront, early on March 3, 1955.

The original India Wharf was designed by Charles Bulfinch in 1808. It has since been reduced from handling the largest ships to those of less than half the length, when it was cut in two by Atlantic avenue. The inshore section long since disappeared.

The Wharf projects into Boston Harbor between State street and Broad street. To the south is Rowe's wharf and to the north are Central Wharf and Long Wharf. India Wharf has rows of two-story wooden buildings, ranging along the wharf edges in the form of a "U." In the center is a fortress-like brick administration building. This was saved from the flames, which looped around the wooden structures.

The fire was discovered by a motorist at 3:27 A.M., who sounded the first alarm from a box on Atlantic avenue near Long Wharf (scene of the Boston Tea Party) at 3:28 A.M.

By the time Engine Company No. 25 reached the wharf from the Fort Hill station, its crew saw flames along the pier buildings which were loaded with paper and wooden boxes. No time was lost sending in additional alarms. The second and third alarms were clocked at 3:30 and 3:31. The entire harbor area was soon illuminated as flames shot high into the sky; the glare was visible 20 miles away.

Deputy Fire Chief William Terrenzi and District Chief John Morrisy ordered fourth and fifth alarms at 3:38 and 3:40 A.M.

The fifth alarm is the top scheduled assignment in the Boston Fire Department; after that, additional forces are "special called."

Fire Chief John V. Stapleton, of Boston, had given orders that he would respond to a general alarm (the fifth) as he was attending the wake of his father who died the preceding Tuesday. When notified of the blaze he sped to the scene immediately and took command. Assistant Chief Patrick E. Collins was in direct command of the operating forces at the scene.

All told, 19 engine and six ladder companies, including fire boats Engines 31 and 47, responded, together with a rescue unit and miscellaneous other forces. As Boston fire stations were vacated on the fringe areas by large scale moveup, apparatus from Cambridge, Somerville, Everett, Revere, Chelsea, Quincy and Milton moved in to cover those Boston areas.

First firefighting forces moved into the yard space between the wooden buildings and the brick administration office, at the far end of the wharf. From the outset it was apparent the blaze in the box storages could not be extinguished and efforts were directed at cutting off its extension in the combustible pier occupancies, and preventing involvement of the historic old brick administration structure.

As the fire spread, firemen were forced to retreat toward Atlantic ave. with their equipment. Chief Collins repeatedly warned his men to fall back to prevent their being trapped. The most critical period came when the blaze threatened to engulf the administration building. Only the fact that the wind was blowing off the land, firemen reported, prevented the fire from encompassing the entire wharf.

When the flames roared through the roofs, firebrands floated over the harbor. Fire patrols were alerted at the Charlestown Navy Yard and the Naval Annex in South Boston. Sailors went on watch on all naval vessels. Roving squads of firemen were ordered to patrol the streets in Charlestown, South Boston and East Boston as embers drifted. All small craft in the neighborhood of the blazing pier were moved to Long Wharf and other locations.

Volunteers at the Fulton Bushel Box Co. managed to drive out eight trucks from the fire zone but were forced to retreat as flames spread.

The fire reportedly started near the Fulton establishment, about 500 feet from the wharf end, then looped around the buildings and up the other side. The occupancies included many small bushel companies. After bursting out of the Fulton box plant, the fire roared through Simone and Tony's box factories, the Marks Dispatch and the Diamond Motor Transport establishments. Smoke and water damage was inflicted at the Buchanan Trucking Co. property, nearer Atlantic ave.

The Coast Guard Cutter Evergreen and patrol boats, together with the Navy Tug Tuscola and other craft, aided Boston's fire fighters to fight the blaze from the waterside.

Property loss was estimated by Chief Stapleton at $100,000. Four firemen were slightly injured. The fire was declared under control about 5:00 A.M.

Two fire boats help finish up the battle against a fire that swept through historic India Wharf at Boston, on March 3.

Four Overcome Fighting Baled Paper Blaze

A smoky fire in a two square block paper storage yard of the Pioneer-Flintkote Corp., Vernon, Calif., caused damage estimated at $250,000 and felled four persons.

The stubborn blaze was fought for more than two hours by the entire Vernon Fire Department, under Chief L. C. Husted, who said thousands of bales of paper, each weighing 1500 pounds, were involved.

Flames also swept through a half-block long stack of wood and smoldered through bales of cardboard and fiberboard used for making roofing material.

Vernon Fire Captain Frank Sabella was taken to St. Francis Hospital after he was overcome by smoke. Two other overcome firemen and a plant employe were treated at the scene.

The Vernon department was aided by two Huntington Park companies and one from Maywood.

Chief Husted said his greatest exposure worry was from sparks blowing toward the nearby yard of the California Cotton Oil Corp. Sparks did ignite a stack of 50 bales of cotton and burned through half of it.

PAUL DITZEL

Tavern Caretaker Dies in Fire

A 75-year-old man, caretaker of a tavern in Lodi, Calif., succumbed to smoke poisoning and pneumonia following a fire that gutted Jerry's Tavern on March 6, 1955. Two adjoining taverns were heavily damaged.

The victim evidently returned to his living quarters above the tavern to save some possessions unnoticed by fire fighters and was overcome by heavy smoke. Firemen located him after the fire had been extinguished, revived him and removed him to a hospital for further treatment, but he died two days later.

The fire occurred at 5:00 A.M. and was caused by grease in the hood over the kitchen range, which ignited and melted the aluminum hood, permitting rapid spread of the flames throughout the entire cafe. Improper fire-stopping in ceiling joists contributed to lateral spread of the blaze.

Two volunteer firemen received minor injuries. Fire Chief Geo. D. Polenske of Lodi, was in charge of operations.

Thick billowing smoke envelopes the Fairfield Lumber Company, Fairfield, Conn., as firemen battled a spectacular blaze in one of the giant warehouses on January 21, which caused damage estimated at more than $400,000. Four firemen were injured during the fire.

Swamp Fire Involves Large Lumber Warehouse

A fire which started in a nearby cattail swamp with lightning rapidity through the Fairfield Lumber and Supply Company's Thorpe Street warehouse at Fairfield, Conn., on Jan. 21, causing damage estimated at $400,000.

The spectacular blaze, the largest in the history of Fairfield, according to fire officials, engulfed the 360 by 60 foot structure and destroyed tons of plywood, seasoned lumber, wood siding, and fancy framing as firemen battled the flames for almost 15 hours before it was entirely extinguished.

More than 100 firefighters and volunteers, under the direction of Fire Chief Thomas J. Carroll, fought the fire. Two firemen were overcome from smoke and two received lacerations.

Benjamin E. Plotkin, president of the firm, said after the fire that the destroyed building will be replaced by a new one.

The heat from the fire was so intense, it blistered the paint on a workshop 100 feet away and during the height of the fire, apparatus was moved back because of the danger of heat exploding the gasoline tanks.

TOM MAGNER

Heavy Stream Opens Metal Roll-Up at Fire

A mysterious warehouse fire in Los Angeles, Feb. 4, caused fire fighters much concern and temporarily put 50 elderly workers out of a job.

First alarm of the blaze at the Goodwill Industries salvage warehouse at 2035 Humboldt St. came at 11:22 p.m.

Rookies at the nearby Los Angeles Fire Department training center were just preparing for bed after the usual rough day at the drill tower when several men noticed a red glow in the sky.

They quickly reported to Capt. Ralph Wade, in charge of the group, and also told Capt. Wade they had been listening to the fire radio monitor and had heard no activity on the air.

Capt. Wade notified the alarm board at Westlake. Operators there had not received any previous notification of the blaze and as they were preparing to dispatch apparatus, another report came in by phone.

When Battalion Chief H. L. Hall rolled out of his headquarters at Station 1, only a few blocks from the site of the fire, he could see the structure was fully involved.

At 11:25 p.m. he radioed Westlake for a second alarm.

Responding on the second, Asst. Chief Ronald T. Robertson could see the huge glow in the sky as he left his headquarters at Station 3 in Downtown Los Angeles.

First-in companies found the 100x150 ft. concrete-walled building completely involved. A number of nearby structures, including another Goodwill warehouse and the plant and warehouse of the Fuller Paint Co. were seriously threatened.

First efforts were to protect the various exposures.

Monitors were brought into action on the three accessible sides of the burning building and tons of water were poured on. Handlines were spotted around the perimiter, too, and also on the side of the building not covered by the monitors.

It was impossible to gain entry into the warehouse because of six locked metal roll-up doors. Matters were further complicated because the floor of the structure was five feet above street level. Windows were also high up.

Handlines were brought into play through a few windows, but it was vital to get those doors open. The doors were glowing red hot and it was impossible to touch them or cut them, Chief Robertson said.

Capt. Kenneth Linn of Engine 3 was told to try and break one door down with a water stream. A 1¾-in. tip was placed on the big Engine 3 manifold monitor and pressure raised to 100 pounds.

"It just opened the door up like a venetian blind," reported Capt. Linn.

Soon after, other doors were cooled down and Squad 23 was ordered to respond with cutting torches to aid in gaining additional entry.

Extensive overhauling operations were necessary and some units were working eight hours later at the change of shift.

Arson investigators were reported checking on the unexplained start of the $150,000 blaze.

Responding were Engines 1, 70, 44, 4, 3, 24; Trucks 1, 4; Salvage 44; Squad 23; Utility 3; Battalion 2; Division 1.

CLIFF DEKTAR

New York Holds Firemen's Day

Approximately 3,000 officers and men of the New York Fire Department, with a contingent of the Fire Patrol, celebrated "Firemen's Day" on April 15th. Highlights of the affair was a parade up Broadway of ancient and modern fire apparatus, demonstrations of evolutions, and speeches by Mayor Robert F. Wagner and Fire Commissioner Edward F. Cavanagh, Jr. All city fire stations kept open house from April 11 to April 16.

L.A.F.D. photo by Lynch

This door was red hot, and barred firemen from entering cement salvage warehouse. This interior view shows door after it was opened by stream from Engine 3 monitor.

News of the Manufacturers

"Nibbler" Has Big Metal Appetite

Power-driven tools are becoming more and more popular with the fire service. Here's one that deserves consideration. It's a new, light duty "Nibbler," product of Fenway Machine Co., 263 N. 23rd St., Philadelphia, Pa., makers of portable electric metal-cutting tools.

"Nibbler" for cutting metal plates.

The Nibbler is said to cut all types of stainless steel, light plate or sheet stock of cold rolled steel, aluminum, copper, galvanized metals, etc., of all shapes and contoured stock without damage to the original contour.

It has a punch-and-die action, removing a tiny slug with each cutting stroke. It is light in weight (8 lbs.), can be easily maneuvered as a hand tool or vise-mounted for bench work. At maximum load it cuts at the rate of 43 in. per minute, from any angle, with minimum cutting radius of 3/8 in. Motor is universal type and can be operated off portable generators. Three-wire 8 ft. rubber cord is included. Punch and die are replaceable for sharpening as needed.

Fenway also announces a special head for cutting corrugated metals, and a new 90 degree die holder for its heavy-duty Nibbler.

Wetting Agents in Soda and Acid Extinguishers?

It has been recognized that the addition of common wetting agents to the soda solution in soda and acid extinguishers resulted in excess foaming and reduced duration and range, and thus practically nullified the extinguisher's effectiveness.

To avoid these undesirable effects and still secure the advantages of "wet water" in the extinguisher charge is the aim of Airtronic Research, Inc., of 5522 Dorsey Lane, Washington, D. C., who are now carrying on research on such use of wetting agents.

Their laboratories have come up with a mixture made of several foam suppressors and a new type of surfactant that apparently provides effective wetting, low foaming and controlled solubility in the sodium bicarbonate solution.

Airtronic points out that the product is not yet commercially available, and will not be available until such time as the producers satisfy themselves as to the potential value in fire control.

Power Heads Sprinkler Association

At the annual meeting of the National Automatic Sprinkler and Fire Control Association in New York, John J. Power, Jr., of Youngstown, Ohio, was elected President and Chairman of the Executive Committee.

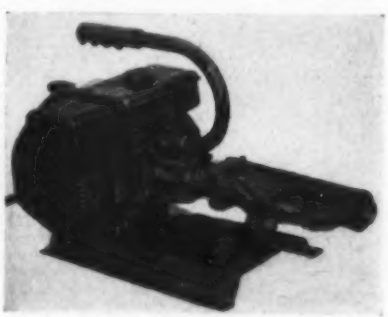
Frank J. Fee, Jr., of Mount Vernon, N. Y. was named First Vice-President and Vice-Chairman of the Executive Committee.

Other officers elected were Ray B. Heath of Worcester, Mass., Second Vice-President and A. G. Woelfel of Ridgefield, N. J., Secretary-Treasurer.

The resignation of Arthur M. Lewis of New York City as Chairman of the Executive Committee was announced at the meeting. Mr. Lewis, President of the Globe Sprinkler Co., will remain on the Executive Committee, which includes in addition to the four officers, O. L. Swats of Providence, R. I. and T. Seddon Duke of Philadelphia, Pa.

Portable Water Pressure Units

The Epco Pumper is a complete unit, including power supply, pump and filter for supplying fresh or salt water at 300 psi at the rate of 7 gpm. Model GMS, powered with a 1.6 h.p. gasoline engine weighs 30 pounds and is easily carried by means of a handle-bar type of carrier. The uses for this high pressure pumper include fire-fighting, testing, water supply systems, and other applications. When equipped with the Ratiojet Nozzle, the Epco Pumper is effective for the application of detergents, which are mixed with water and applied under high pressure in specified proportions of chemical-to-water. In addition to the Epco Model GMS, the Model EMS, powered with an electric motor of 1.5 h.p., and the Model EMD, powered with a 3 h.p. motor direct-connected to dual pumps, are also available. The Model EMD supplies 14 gpm at 300 psi. These units are built by the Eastman Pacific Company, 2320 E. 8th St., Los Angeles 21.



New Epco Portable Pumper

"Redi-Jet" Extinguisher

A new type 2½-gal. water, or anti-freeze, fire extinguisher has been introduced by Stop-Fire, Inc., Brooklyn 1, N. Y. Named "Redi-Jet," it is pressurized with air or nitrogen to 100 P.S.I. It has one-hand squeeze-grip operating lever and carrying handle. It discharges a stream 35 feet and with anti-freeze solution, it is reported effective from —40 to plus 120 deg. F. It bears U.L. approval for use against Class A fires.

Controlled flow with spring-loaded valve permits intermittent operation with retention of charge. Annual recharge is said to be unnecessary; it has a visual pressure gauge and red (recharge) signal. Built of one-piece seamless drawn 85-15 brass shell with solid brass fittings, the unit is subjected to 450 P.S.I. hydrostatic test.

American-LaFrance in Merger

Sterling Precision Instrument Corp. has announced a plan of consolidation with American-LaFrance-Foamite Corp., well-known manufacturer of fire protection equipment. The plan, it was stated, has been approved by the directors of both companies and will be submitted immediately to their respective shareholders for approval. Under its terms, American-LaFrance shareholders will exchange their stock for Sterling shares on the basis of 6 shares of Sterling for each share of American-LaFrance.

George R. Hanks

American-LaFrance will be the fourth company to enter the Sterling Precision group in recent months. The others are Smith-Palmer Corp. of Chicago, Trans-American Precision Instrument Corp. of Flushing, N. Y., and Yawman & Erbe Manufacturing Co. of Rochester, N. Y.

Acquisition of American-LaFrance represents an important stride forward in the growth and diversification program launched by Sterling in mid-1954, Sterling's president, Robert Russell, stated. Mr. Russell pointed out that when the program was undertaken the Company was engaged principally in the manufacture in diesel engines. Today the Sterling group is reprsented in such diversified fields as electrical and electronic instrumentation for both military and civilian use, office systems, and specialized heavy duty machinery.

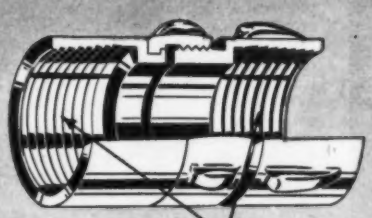
George R. Hanks, president of American-LaFrance-Foamite Corporation, in commenting on the merger, said: "The proposed consolidation will not affect the present management and employees of American-LaFrance or the activities of the company. We shall continue operations as before, and will actively pursue

LIGHTWEIGHT
FORGEX couplings
for LIGHTWEIGHT
synthetic-fibre hose
Make Sense!

FORGEX

The lighter, tougher DROP-FORGED COUPLING

More and more fire companies specify FORGEX with every order of lightweight, synthetic fibre fire hose. Independent laboratory tests PROVE Forgex couplings up to 100% stronger than other couplings . . . yet they weigh only half as much. Drop forging's the secret . . . combines lightness with super toughness. Tested on hose to over 1500 pounds, independent laboratory tests proved that "the hose will blow before FORGEX will go." All brass, non-corrosive, cost no more than ordinary couplings.



FORGEX has the tapered hose bowl that grips the hose forever.

SPECIFY FORGEX®

AKRON BRASS
FIRE FIGHTING EQUIPMENT

AKRON BRASS MFG. CO., INC. • WOOST[illegible] ONIO

our policy of market expansion and new product development.

"The management and directors of American-LaFrance view the proposed consolidation as a long forward step toward stabilizing the company's future earnings, growth and diversification.

"American-LaFrance's operations should be benefitted substantially by the company's affiliation with the companies of the Sterling group.

"Apart from diversification, there should be direct operating advantages to be gained by American-LaFrance through the interplay of resources, the coordination of administrative, sales, marketing and merchandising machinery, and the exchange of research facilities, technological know-how and product development experience with other companies in the Sterling Group."

New Benjamin Siren

A new sound signal designed to better meet the need for air raid, fire and other types of signalling has been announced by Benjamin Electric Mfg. Co., Des Plaines, Ill. This new siren features compact design. It is primarily designed for fire and air raid signalling; however, it is also recommended for installation in elevator shafts, factory production areas, etc.

The motor which drives the siren is rated at 1/5 h.p. at 10,000 R.P.M. The motor parts are assembled in a cast-iron housing, which in turn, is assembled in a sheet steel casting. A rubber washer is placed between the castings to prevent moisture from entering. A ½" iron-pipe threaded bushing is furnished for ½" conduit. Ten rectangular openings or ports, in the steel casing permit the expulsion of air. For additional safety, a grill-guard is fastened to the front of the case.

Motor housing of the new siren is finished with a heavy coat of zinc plate, iridite dip and gray hammered paint enamel. This provides a corrosion resistant finish.

Novel Unit Added for Rural Fire Fighting

This International Model R-140-4x4, four-wheel drive, mounting fire fighting equipment, is now in service in Douglas County, Wash., adjoining the Columbia River, protecting rural property. The area includes steep hills and sandy soil not normally negotiable by standard 4 x 2 trucks.

According to Fire Chief Robert Deery of Douglas County Fire District No. 2, the unit is powered by a 108 h.p. International Silver Diamond 240 engine and mounts 10-ply snow and mud tires front and rear. Transmission is sliding gear selective type, four-speeds forward and one reverse, with power take-off openings on both sides.

The vehicle's 9-ft. pick-up body carries fire fighting equipment including hose, 300 gal. water tank and pump, driven by a 31 h.p. gasoline engine, also mounted on the pick-up body.

Novel hill-climbing fire unit for county service.

Rogers Appointed Sales Specialist for FWD

Appointment of Charles A. Rogers as sales specialist in the fire engine division of Four Wheel Drive Auto Company, Clintonville, Wis., was announced by G. F. DeCoursin, vice president — sales.

Charles A. Rogers

Rogers, supervisor of FWD fire engine sales since 1945, has an extensive background in fire safety. He served as fire chief at New London, Wis., and during World War II was in charge of Fire Suppression and Safety Headquarters with the Corps of Engineers at Eau Claire, Wis. He also was Fire Chief and Safety Engineer at Western Electric with the Corps of Engineers during World War II.

Rogers, a graduate of Milwaukee Fire School, was a fire engine sales representative for FWD and two other firms prior to the war.

Apparatus Chassis Catalog

Color photographs illustrating the range of application of specialized International fire truck chassis feature a new catalog published by the motor truck division, International Harvester Company, 180 No. Michigan Ave., Chicago, Ill.

The 12-page publication describes the series of International trucks engineered and manufactured specifically for mounting fire apparatus. Photographs of International trucks in fire fighting service and engines which power each and condensed specifications cover the medium-duty R-166, R-176, and R-186, produced at Harvester's Springfield, O., Works; the heavy-duty R-1856, R-196 and R-206, built at the company's Fort Wayne, Ind., Works, and the R-306, biggest truck of the series, manufactured at the company's Emeryville, Calif., Works.

G.E. Announces New Line

The General Electric Company, Harrison Van Aken, general manager of Communication equipment, has announced a complete new line of FM mobile and base station two-way radio communication equipment for both 25-54 meg. and 144-174 meg. land-operated radio services.

New G-E standard 14-inch housing shown in trunk mount condition contains power supply chassis and transmitter chassis making for 54-82 watts output. Cable connectors connecting the transmitter, receiver and power supply chassis can be seen on their stand-off connector clips. The control head and speaker shown would be used with this mobile unit.

The "Progress Line" as it is known, has numerous features; it is designed around twelve "building blocks" of standardized physical dimensions. 'Plug-in' chassis is provided. Flexibility is accomplished by complete interchangeability with other units of its type. All receivers operate from either six or twelve volt D.C. source or from a 117 volt A.C. power supply.

Complete specifications of the new line may be had by writing General Electric Co., Electronics Park, Syracuse, N. Y.

Stopping an Explosion in Its Tracks

Explosions are being stripped of their destructive forces. A new electronically controlled device that protects planes in combat from fuel tank explosions has been developed by the Fireye Division of Electronics Corporation of America, Cambridge, Mass.

Although the explosion extinguisher was designed specifically to prevent fuel tank explosions after direct hits in combat, it opens up the entirely new field of explosion extinguishing with wide application, especially in industries dealing with highly combustible materials.

The heart of the new device is a miniature, lightweight photoconductive cell developed for detection of combustion. Mounted inside the fuel tank of a plane, the cell detects an explosion by responding to its infrared output the instant it

important advance in
year-round fire protection

NEW 3% AER-O-FOAM LIQUID MAINTAINS MOBILITY AT −20°F

For control of fires in flammable liquids, 3% foam liquids (double strength) offer obvious advantages: economy of storage space, facility in transport and handling, low cost per unit volume of foam.

The new, patented National *AER-O-FOAM Liquid, 3% Cold Foam,* combines these advantages with the ability to perform as well at sub-zero temperatures as at summer heat.

Unique in its field, this new AER-O-FOAM Liquid assures correct proportioning in the foam-making process at temperatures as low as −20°F. The extra protection is apparent.

Quick facts on performance

National AER-O-FOAM Liquid, 3% Cold Foam, is equally effective with soft, hard, or sea water.

It stores easily for longer periods because there is no deterioration under normal storage conditions.

It is compatible with almost all 3% regular liquids.

It meets all applicable requirements of U. S. Government specifications.

Special Cold-Weather AER-O-FOAM Trucks

For use with 3% Cold Foam Liquid, National Foam offers special foam trucks insulated for operation in very low temperatures. Carrying up to 750 gallons of 3% Cold Foam Liquid, the trucks can produce as much as 12,000 gallons of foam per minute.

Unlimited supply

As a result of recent expansion in National Foam's production facilities, the new 3% Cold Foam Liquid is available in unlimited quantities. Full details will be forwarded promptly on request.

NATIONAL FOAM

NATIONAL FOAM FIRE PROTECTION SYSTEM

SYSTEM, Inc.
West Chester, Pa.

"sees" it. This response requires no flame contact, pressure rise, or temperature rise, but is instantaneous. The speed of detection of the explosion can be within one-millionth of a second of ignition.

Coupled with the cell inside the fuel tank of the plane is an explosive capsule containing a vaporizing liquid extinguishing agent. When a bullet makes a direct hit on a fuel tank, resulting in an explosion, the cell responds to the infrared radiation of the incipient explosion by counter-exploding the frangible capsule to flood the fuel tank vapor space with extinguishing liquid. This sequence of events successfully extinguishes explosions with little or no pressure rise. Thus, in a few millionths of a second after the direct hit the explosion is extinguished before it ever really starts.

Adaptations of the new device are already being made by ECA engineers for use in ground fuel storage tanks, pumping stations, and similar areas, where explosions are an ever present hazard.

Bumper Antenna Mount

An unusual antenna bumper mount has been introduced by Vaaro Div., Davis Electronics, Box 1247, Burbank, Calif., which entirely eliminates having to cut holes in the radio user's car to make a proper installation.

The Vaaro Bumper Mount reportedly fits any make antenna and make or model car in operation. It can be inexpensively replaced as the user changes his car model.

The mount comes in two models: Model V-105. Cast aluminum; standard ⅜" x 24 thread; baked enamel finish; weight 2 lbs., and Model V-105V—same as Model V-105 except cast bronze with heavy chrome and copper underplating; weight 5½ lbs.

Waterous Compiles Unusual Safety Record

For completing a full year without a single lost-time accident, the Waterous Company of St. Paul, Minnesota, has been awarded a safety plaque by Employers Mutual of Wausau, their workmen's compensation insurance carrier.

During the year ending November 1, 1954, Waterous employees totalled 358,840 man hours without accident. According to National Safety Council statistics, the national average for all industrial plants the size of the Waterous Company is nearly 300 days lost from accidents during a similar period.

Olson Named Motorola Communications Engineering Director

Roy H. Olson has been appointed Director of Engineering in the Communications & Electronics Division of Motorola, Inc. According to Daniel E. Noble, Division vice president, he will direct the technical activity of the Division's industrial products department.

Olson, 43, an electrical engineer of 20 years experience in radio, received his engineering degree from Iowa State College in 1934, following which he joined the Collins Radio Company. Later he operated his own manufacturing and consulting firm before joining Motorola.

At Motorola, Olson has previously been coordinator of National Bureau of Standards missile fuse projects and project leader for special military development tasks.

Pyrene-C-O-Two Elects Vice-Presidents

S. R. Baker, chairman of the board and president of the unified Pyrene Manufacturing Company and C-O-Two Fire Equipment Company, announced March 24 the election of Maynard A. Laswell of Summit, N. J., to executive vice president in full charge of over-all operations. Mr. Baker also announced the election of Ralph F. Batch of Short Hills, N. J., to vice president in charge of industrial relations and allied activities.

Maynard A. Laswell

Mr. Baker stated that the new titles and responsibilities for Laswell and Batch were necessitated by the unification of the two fire protection equipment producers, which has been virtually completed. General streamlining and improvement of all facilities are being effected as fast as possible, he said. General offices and principal manufacturing operations are located in Newark, with branches in Atlanta, Chicago, Dallas and Los Angeles, and subsidiary operations in Pennsylvania and Canada.

Ralph F. Batch

Laswell was the founder of C-O-Two some 25 years ago and has played a prominent part in its growth. He has been the prime motivating force in the unification program of Pyrene and C-O-Two. Prior to his new position, he was vice president in charge of all sales and promotion activities. Well known in the fire equipment field, he recently served a term as president of the Fire Equipment Manufacturers' Association.

In addition, Mr. Laswell is currently a member of The Society of Naval Architects and Marine Engineers, Society of American Military Engineers, The American Society of Naval Engineers, Navy League of the United States, The Propeller Club of the United States, New York Athletic Club, Downtown Club of Newark, N. J., Essex Fells Country Club of Essex Fells, N. J., Thunderbird Ranch and Country Club of Palm Springs, Cal., and The Tennis Club of Palm Springs, Cal.

Mr. Batch has also been active in the growth of C-O-Two during his past twelve years of service, as well as taking part in the unification program of Pyrene and C-O-Two. Among his duties to date have been personnel director, industrial relations director, assistant secretary and secretary. He is currently President of the Employers' Association of New Jersey; a member of the National Executive Committee of the Society of Former Special Agents of the F.B.I. prior to joining C-O-Two. He is a member of The Propeller Club of the United States, Traffic Commission of Newark, N. J., Downtown Club of Newark, N. J., Canoe Brook Country Club of Summit, N. J., Racquets Club of Short Hills, N. J., and the local draft board.

FWD Appoints Laack

Arthur J. Laack, assistant to the advertising manager of Trane Company, LaCrosse, Wis., is the new advertising and sales promotion manager of Four Wheel Drive Auto Company, Clintonville, Wis.

G. F. DeCoursin, FWD's vice president-sales, announced Laack's appointment as successor to Arthur J. Danley, who recently was advanced to public relations director of FWD.

Piped Dry Chemical System Gets UL Approval

Underwriters Laboratories, Inc., has granted approval to the dry chemical piped system of fire extinguishment developed by the Ansul Chemical Company, Marinette, Wisconsin.

This marks the first time any dry chemical piped system has been listed by a recognized approval agency.

With this system, automatic fire protection is provided against Class B and Class C fire haazrds by means of dry chemical, which is conveyed through pipes and expelled in the area surrounding the hazard

The approval means that dry chemical piped systems can be installed to protect such hazards as paint dip tanks and spray booths, ovens, driers, oil quench tanks, flammable liquid pumping stations, transformer vaults, diesel and gasoline engines, generators, oil storage tanks, flammable liquid storage rooms, asphalt saturators and marine hazards.

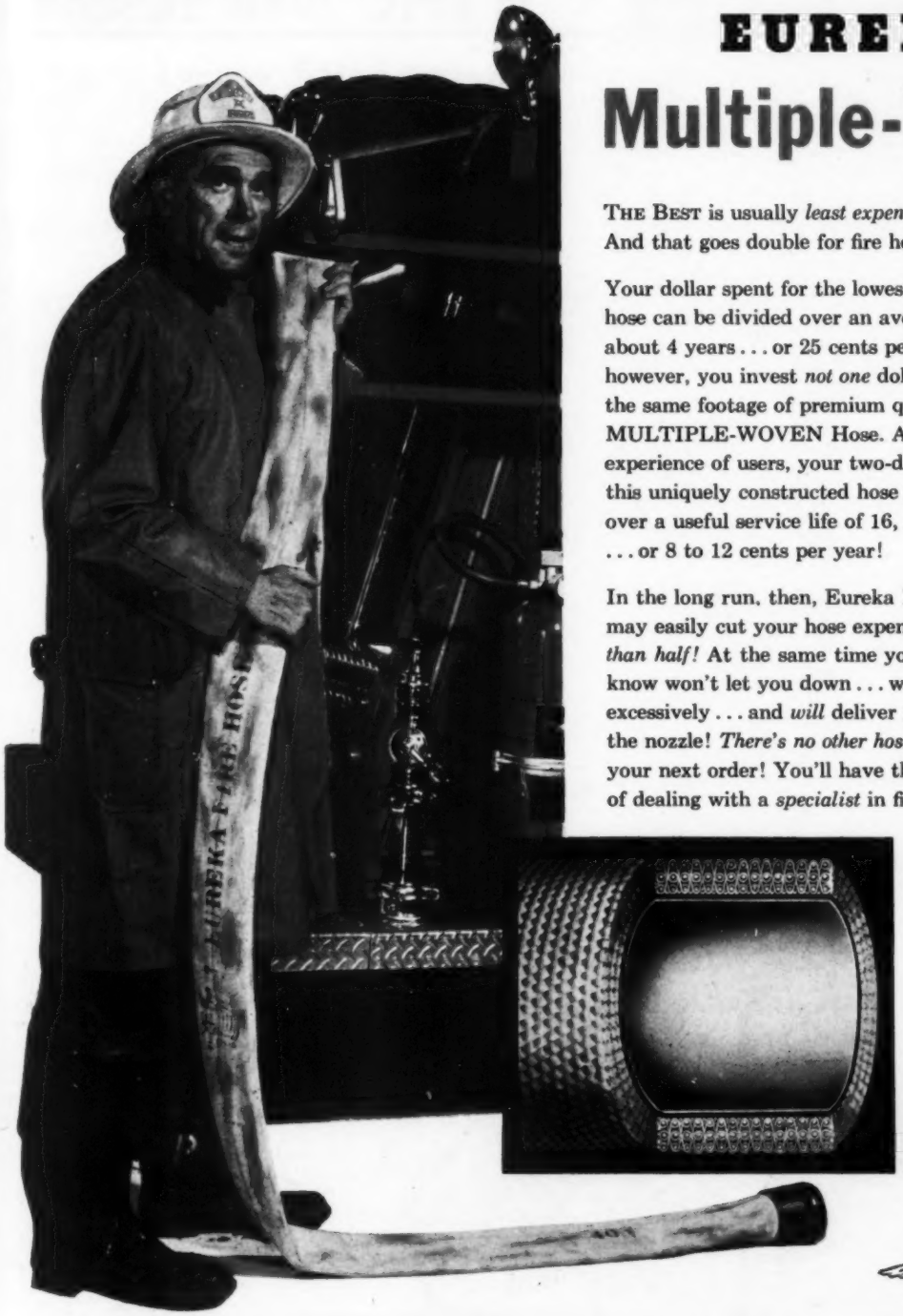
Piped systems have already been installed in the metal fabricating, aviation, petroleum, chemical, paper and automotive industries and in the electrical utility field. They provided for either automatic or manual operation and can be activated at the system or from a remote control installation. Automatic systems may also be operated manually.

The automatic systems are operated either by pneumatic rate-of-rise type of heat detection devices or by electrically operated releases. Within a few seconds after detection of a fire, dry chemical is

(*Continued on page 371*)

Let's talk DOLLARS and SENSE about

EUREKA
Multiple-Woven



THE BEST is usually *least expensive in the long run.* And that goes double for fire hose! Here's why:

Your dollar spent for the lowest-priced approved hose can be divided over an average service life of about 4 years . . . or 25 cents per year. Suppose, however, you invest *not one* dollar but *two dollars* in the same footage of premium quality Eureka MULTIPLE-WOVEN Hose. According to the experience of users, your two-dollar investment in this uniquely constructed hose may well be spread over a useful service life of 16, 20 or even 24 years . . . or 8 to 12 cents per year!

In the long run, then, Eureka MULTIPLE-WOVEN may easily cut your hose expenditures *by more than half!* At the same time you'll have a hose you know won't let you down . . . won't warp or writhe excessively . . . and *will* deliver maximum pressure to the nozzle! *There's no other hose like it.* Specify it on your next order! You'll have the added satisfaction of dealing with a *specialist* in fire hose!

All plies of Eureka Multiple-Woven Hose are woven *and interwoven* simultaneously, leaving no space between plies for collection of water, dirt or mildew.

"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Cotton Rubber-Lined Fire Hose

195 Hudson Street • **New York, 13, New York** • *Division of United States Rubber Company*

FALSE ALARMS

Keeping a Secret

A bride and bridegroom came down to breakfast in the hotel where they had spent the first night of their honeymoon.

"Now, be casual and offhand and they won't know we're newlyweds," cautioned the groom.

While he studied the menu, his bride gave her order to the waiter: "Tea and toast without butter, please."

Whereupon her husband exclaimed in a voice everyone in the place could hear: "Good Heavens, is that all you eat for breakfast?"

Safety Director (entering flower shop with worried look): "I'd like three potted geraniums, please."

Clerk: "I'm sorry, sir, but we're out of geraniums just now. How about some nice potted chrysanthemums?"

Safety Director: "No, no, I'm afraid they won't do. I promised my wife I'd water the geraniums while she was away."

An American and a Dutchman were talking. "What does your flag look like?" asked the American.

"It has three stripes," replied the Dutchman, "red, white, and blue. We say these colors have a connection with our taxes. We get red when we talk about them, white when we get our tax bills, and we pay 'til we're blue in the face."

"That's just how it is here," said the American, "only we see stars too.

Rapt Attention

A small-town gentleman, while enjoying a convention in a large city, attended a strip-tease performance with some of the boys. The next day he was obliged to go to an oculist for treatment.

"When I left the show last night," he told the oculist, "my eyes were red, sore and swollen."

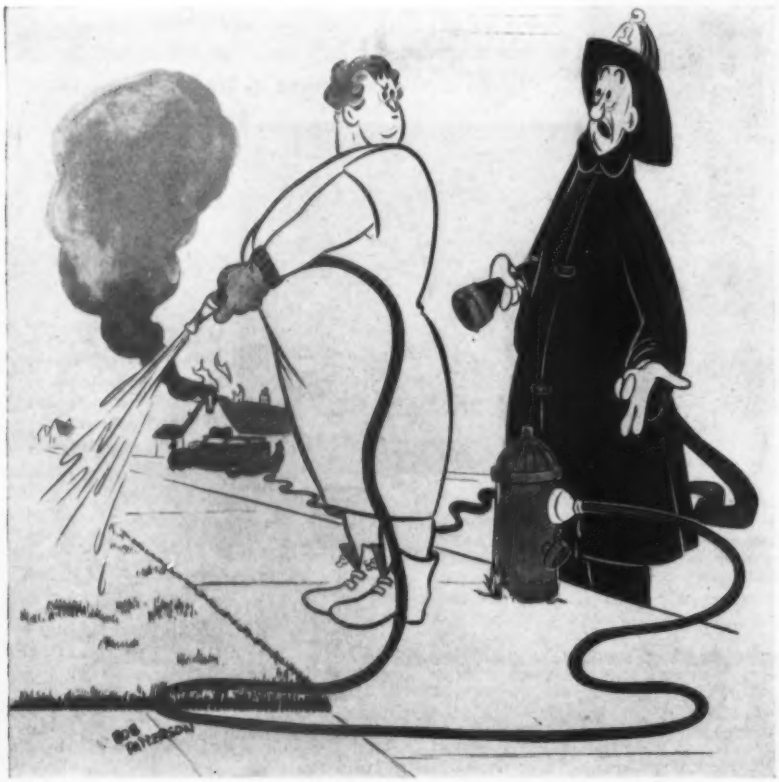
The oculist examined him and said, "Well, after this, try blinking once or twice during the show. You won't miss much."

Cub reporter on his first assignment starts his new short story like this: "There she was, overcome by gas, lying in the partly filled bathtub, little realizing that she owed her life to the watchfulness of the janitor."

Little boy (at first concert during a soprano solo): "Why is that man shaking that stick at that woman?"

Mother: "Shhh. He isn't shaking it at her."

Son: "Then why is she screaming?"



"May I?"

Where to Meet Them

To the blonde dancer who had just finished her act in the floor show the rich young man said sadly, "Tell me, why do you, a beautiful, talented—and apparently educated girl—dance in a sordid joint like this?"

"I don't know," she answered just as sadly, "unless it's because I meet a great many more prominent young men here than I did when I was a public librarian."

Two dogs were walking down the street when one turned and said to the other:

"You're not looking so well these days."

"I know," replied the other, "I'm miserable. I feel mentally depressed."

"Then why don't you go to a psychiatrist?"

"You should know," was the plaintive answer. "I'm not allowed on the couch."

The Odds on Blondes

There are 90,000 hairs on the average redhead's scalp and over 150,000 on blondes. So let this serve as a warning: The chances of getting a blonde hair on your coat are almost twice as many as a redhead's. And that's our good deed for this month.

Truck Dispatcher: "What did the man say when you showed him how your trailer wheels ran over his cat?"

Truck Driver: "Nothing. He just stood there with a long puss."

In Russia it doesn't take a fellow long to talk his head off.

No Choice

First Vistor: "Once there were two worms. One was a very naughty worm, the other was a good worm. The first one was lazy and mean, and he ran around nights chasin' girl worms, and drinkin' pasture dew. The other was always out early in the morning and tending strictly to business. The early bird got the early worm, and a fisherman got the night crawler."

Second Vistor: "I don't get it. What's the moral?"

First Visitor: "The moral is—take your choice. You can't win anyway."

It's always the fresh egg that gets slapped in the pan.

A speech is like a wheel—the longer the spoke, the greater the tire.

Automatic Drive

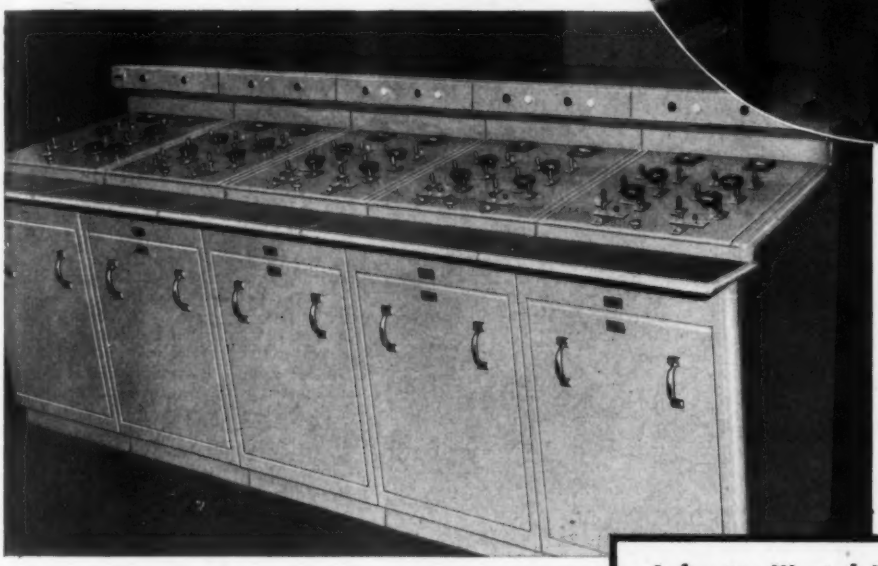
"Use both hands," screamed the girl to her boy friend at the wheel.

"I can't," he shouted, "I have to drive with one!"

LAFAYETTE, INDIANA Chooses New *SAFA* Fire Alarm System

"Steps up fire fighting efficiency with automatic, city-wide warning network"

Mayor Kenneth R. Snyder and Fire Chief Peter Kuipers at the "watch desk" in Lafayette's Central Station. Instant, two-way conversation is provided between "central" and any or all sub-stations.



This modern SAFA control panel contains every safeguard known to keep Lafayette's alarm system ready for instant action at all times. Handles all signals unerringly.

After careful study of their city's fire protection requirements, the public officials of Lafayette, Ind. unanimously resolved to install new, modern Municipal Fire Alarm Equipment.

And their choice was a SAFA FIRE ALARM SYSTEM . . . A SYSTEM that is both flexible and versatile. Fire alarm boxes, strategically located, unerringly transmit every call through a highly refined chain of Central Station equipment. Other accepted Fire Devices: private alarm systems, auxiliary alarms and sprinkler alarms are inexpensively connected and made a part of this comprehensive, life-saving and property-saving system.

Lafayette's present and future fire-warning and fire-control problems are solved. You can solve yours, too, at less cost than you think. Detailed studies and recommendations are made without obligation. Write today for complete information.

Lafayette Wanted These *SAFA* Features

- Two-way voice communication between "central control" and any one or all sub-stations.
- Provides both pilot light and buzzer signaling. Red light for call indication, white light indicating the "on" position when channel is being used.
- A tone generator, at the master station, to alert sub-station.
- Exceptional tone quality, balanced to meet irregularities in line resistance.
- Control panels can be flush-wall mounted. All servicing and fuse replacement from the front.
- Flexible — can be added to at any time.
- All equipment of modern design . . . and built of the finest materials available. Meets every NFPA requirement.

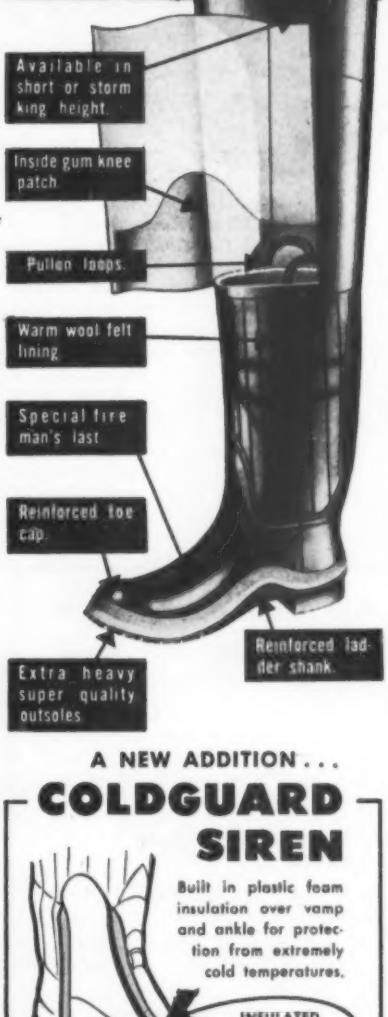
SAFA

SAFA ALARM DIVISION

THE FYR-FYTER COMPANY

243 WEST MARKET STREET ORRVILLE, OHIO

TOP NOTCH SIREN
SIREN
FIREMEN'S BOOTS


Available in short or storm king height.
Inside gum knee patch.
Pullon loops.
Warm wool felt lining.
Special fire man's last.
Reinforced toe cap.
Reinforced ladder shank.
Extra heavy super quality outsoles.

A NEW ADDITION . . .
COLDGUARD SIREN

Built in plastic foam insulation over vamp and ankle for protection from extremely cold temperatures.

Sold only through authorized distributors

PRODUCTS OF
BEACON FALLS RUBBER FOOTWEAR
BEACON FALLS, CONN.

The ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

TRAINING FIRE APPARATUS DRIVERS

THE discussion in this Round Table is a continuation of that which appeared in the March issue on training fire apparatus drivers.

The generous response from our readers makes it necessary to carry the discussion over to this issue and the May issue as well.

Address replies to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Discussion of the Subject

Hoyt M. Ayers, Chief, Birmingham, Ala.: Drivers of our fire apparatus are usually selected on the basis of seniority at the station at which they work, and seniority on the particular apparatus to which they have been assigned. There are, however, exceptions to this rule, and are as follows: The man whose seniority, would ordinarily entitle him to a driver's position must in the opinion of the Station Captain meet certain requirements such as having a good knowledge of the pump mechanism, and be a person who normally would not become erratic or rattled under emergency conditions. We usually try to select men whose stability would have a steadying influence on the other men riding the apparatus with him. Drivers in our department are naturally expected to have a thorough knowledge of the territory in which they work; however, this is true even to the youngest men at the station.

We have regular classes in fire department hydraulics so that each man as well as the driver will have a working knowledge of pump pressures for heavy streams and hand lines, etc.

We, in our drills and training program, attempt to train every man on each apparatus not only in his specific duties, but in all other duties as well, including driving the apparatus. When a man is finally promoted to driver, we take him to the training grounds and give the following tests:

1. Question him regarding safety rules in the Department.
2. Knowledge of his territory.
3. Knowledge of pump.
4. Care and maintenance of the apparatus.
5. Handling of apparatus on practice runs.
6. Hydraulics.
7. Specific duties of driver.

George E. Courser, Chief, San Diego, Cal.: Special training is mandatory for members of the San Diego Fire Department if they wish to qualify for promotion to apparatus operators (Engineers). They must have at least 4 years service before they become eligible for this promotional examination.

Our special training consists of off-duty schooling devoted to fire apparatus design and construction, pumping operations under both hydrant and draft conditions, classroom and fire ground fire fighting hydraulics problems, and apparatus handling and operation under actual road conditions.

Our members are encouraged to begin driver training by utilizing reference books, problems and visual aids, as soon as they become Fireman First Class (at the expiration of 3 years' service). More intensive training is begun from 6 weeks to 3 months prior to the date of promotional examination (depending on the number of candidates). Successful candidates on the eligible list are given a short refresher course immediately before appointment to an Engineer's rating.

A portion of our promotional examination for Engineer is composed of actual apparatus operations. Each candidate is require to actually operate an apparatus on the highway and over an obstacle course; to pump from hydrant and at draft; to compute "at the fire" hydraulics problems; and to contend with unforeseen emergencies. His ability is then carefully judged by examining departmental officers. This ability, or lack of it, figures prominently in computing the candidate's final grade.

Richard J. Duck, Chief, South Bend, Ind.: Men who drive and operate our equipment do receive training.

All recruits attend our Training

HERE ARE THE QUESTIONS

1. **Do members of your fire department to be assigned as drivers of apparatus receive special training to qualify them?**
2. **Of what does this special training consist?**
3. **What is the average time required to train a driver?**
4. **After they have completed the required period of training, are they subjected to further tests to determine their fitness? If so, of what do the tests consist?**
5. **If no special training is given drivers, how are drivers selected?**

School for approximately eight weeks before being assigned to companies. This training includes classroom and field training in simplified hydraulics and pump operation. They are also trained in aerial ladder work and receive driving practice. The men are graded in all phases of the training program and those showing exceptional ability as drivers and have some mechanical ability are classified as potential drivers and operators.

We find that most men have the ability to drive motorized equipment. However, with emergency equipment, it is necessary for a man to be more than just a good driver. He must have physical and mental qualities to meet whatever situations might arise. He must also have the ability and the desire to learn. All men are required to know how to operate equipment on which they work.

Our department requires company training each week in their respective stations and a portion of that classroom work includes pump operation and practice. Companies are also taken out for practice during the summer months if weather permits. In this way the officers and instructors can determine if the driver or operator is progressing.

R. L. Lampley, Chief, Montgomery, Ala.: Members of the Department who are assigned as drivers of apparatus do receive special training to qualify them for this position.

In most cases drivers are promoted from the assigned position of Assistant Driver; however, regular fire fighters as well as assistant drivers are subjected to all phases of driving, pump operations, maintenance of equipment, familarity of tools and equipment and locations of streets, etc. They are schooled in the foregoing on a continuous year round training program which includes four months of intensified training on the drill field.

Before any member is promoted to or assigned to the position of driver, he must possess an operator's license issued by the State of Alabama and satisfactorily complete the required Montgomery Fire Department driving and operating apparatus test which is administered by the Director of the Division of Training and Instruction and the Fire Equipment Supervisor. This test consists of: (1) ability to operate and maneuver the apparatus, (2) operation of pump and other related equipment on apparatus, (3) fire department hydraulics, (4) knowledge of physical layout of territory, locations of streets, fire hydrants, fire alarm boxes and etc., (5) abillty and knowledge to perform the mechanical work involved in operating and maintaining the apparatus, tools, and equipment.

F. E. Wood, Chief, Wichita, Kans.: All of our assigned drivers receive special training before being certified as drivers of apparatus.

The special training is divided into three sections: Classroom, pumping evolutions and driving practice.

The classroom work consists of information as to the type of engine, horsepower, permissible rpm under certain conditions, checking the machine for water, oil, gas, fan belt, loose connections, tires, batteries, lights, etc.

How to double clutch and why it is

YESTERDAY...
it was fire defense

Then no man could have entered this inferno and lived

BURNING RUBBER
SULPHURIC ACID
NAPTHA and PARAFIN
sent up billowing clouds of thick black smoke

Courier-Express, March 23, 1953

TODAY...
It's Fire Attack

Firemen equipped with Scott Air-Paks walked right in and went to work!

YOURS IS A FIRE ATTACK DEPARTMENT IF YOU HAVE SCOTT AIR-PAKS ON EVERY FIRE TRUCK

Thanks to Scott Air-Paks every man who entered the burning Gould Battery Plant had complete breathing protection. This enabled them to remove many barrels of highly inflammable naptha before the fire reached the store room.

Could your men have entered this chemical smoke? Is your department ready? Better equip now with proven Scott Air-Paks. They cut fire losses by getting men in fast for Modern *Fire Attack*. Write for complete details.

SAFETY EQUIPMENT DIVISION
SCOTT AVIATION CORP.
215 ERIE STREET LANCASTER, N. Y.
Canada: Safety Supply Co., Toronto — Branches in principal cities
Export: Southern Oxygen Co., 15 West 57th Street, New York 19, N. Y.

necessary. Shift positions for the different gears. Gear ratios of different positions and relation to the engine speed.

Type of brakes, booster assistance, proper use for stopping on various street surfaces, turns and curves. Gearing down on hills, approaching turns and on slippery, icy streets. Steering ratio and turning radius of the apparatus.

Control of the apparatus when going through major intersections with or without lights, going through red lights, backing and locating the machine, speed limits and leaving the apparatus at the scene of an emergency.

Principles of pump operation, type and classification of pumps, priming devices, pump accessories and simplified fire service hydraulics.

Pumping operations consist of pumping at draft, from a hydrant, from a booster tank, from a supply line and from tank trucks.

Driving practice consists of driving in residential areas, congested traffic, spotting the apparatus for a hydrant hook-up, laying hose lines and backing up.

A similar breakdown is given for aerial operators as it pertains to the aerial trucks and, of course, the driving practice, especially for the tillerman, is much greater.

Average training time for a member that has not been certified on any apparatus is around twenty hours with the recommendation to drive back from emergencies a few times before being allowed to drive to the emergency.

Training time for a certified driver is usually about eight hours.

All drivers get a review during the regular tower training session with no further tests.

Sidney L. Ulrich, Chief, Peoria, Ill.: We do not have any special training course for the drivers of our fire equipment; however, we expect our men to be able to drive the equipment on which they working as well as other equipment of the department. I do not believe we should lean too heavily on a few men on the department to do a special job of driving. When the men have their extra off days, it is necessary for other men to drive, so we feel they should all be expected to drive.

In fact we have a case where one of our probationary men on the fire department at this time is not able to drive and he has been instructed to learn to drive if he expects to continue as a member of this department. He is not taking driving lessons .

Not only do they have to learn to drive, they have to learn to operate the pumpers and aerials on which they work, as well.

James P. Warwick, Chief, Knoxville, Tenn.: In our department we have assistant drivers who fill in on days off, vacations etc. These men are selected by the chief officers on the basis of qualifications, desire etc.

While we don't have any special training course set up, they are trained in the operations of the pump etc., by the Master Mechanic, and also receive training at the Drill School.

Appointments as drivers are made on the recommendation of the Chief and the approval of the Mayor. The Chief makes his recommendations after conferring with Company Officers, Assistant Chiefs, Master Mechanic and Drill Master.

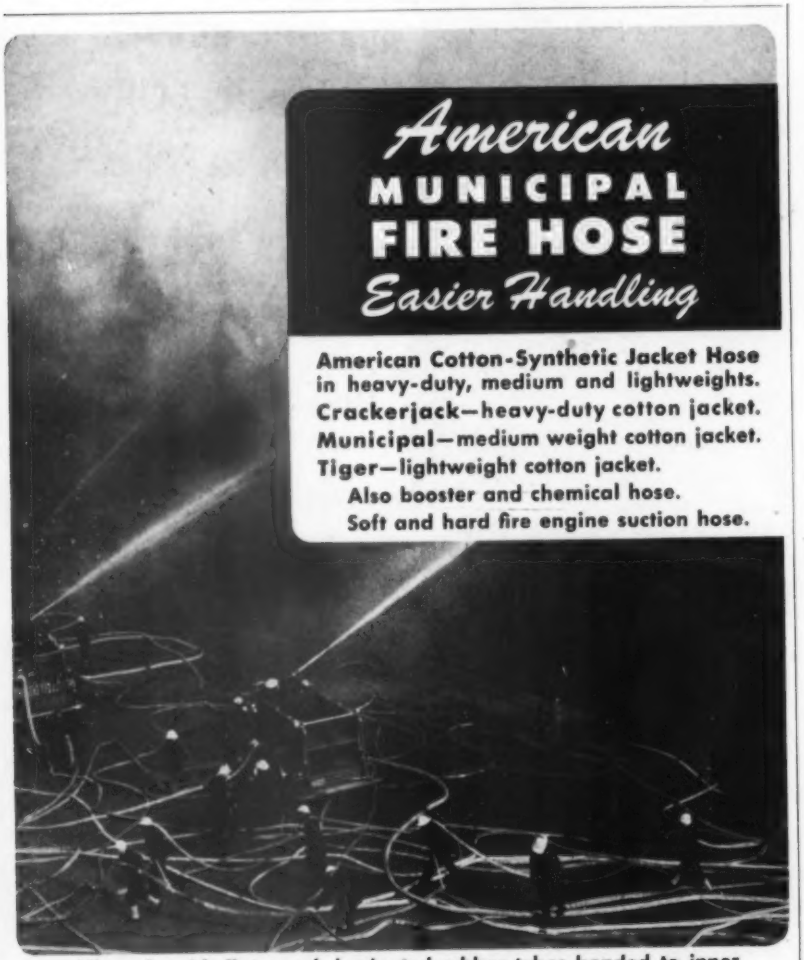
Joseph Zale, Chief, Gary, Ind.: Before a fireman is appointed a chauffeur on an engine or a truck, he must have served as an extra driver for about 2 or 3 years or more depending on the replacements. He is thoroughly drilled in all phases of fire streams, drafting, operation of the pump and must know hydraulics. We have a drill master in our department who takes the companies out approximately two times a week to acquaint the chauffeurs with the various hook-ups fighting simulated fires. hydraulics is taught to all firemen in the Gary Fire Department.

Francis R. Ferren, Chief, Syracuse, N. Y.: The Syracuse Department of Fire has a policy calling for special instruction of firemen, who are assigned as drivers of apparatus.

In the first instance these men are made familiar with the operation of the apparatus in the fire station and at the Fire School, under the supervision of the Company Officer, Fire Chief of Maintenance and the Fire School Director.

The instructions cover every phase of the work a driver is called upon to perform, and the course runs about two or three months.

For training purposes at the start, prospective drivers drive the apparatus back to quarters from fires or alarms, and make trial runs in the immediate vicinity of the fire house. It is not



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necessary for the company to report out of service during these trial runs, since virtually all apparatus can pick up calls or alarms on the two-way radios mounted on pumpers and trucks.

As a matter of policy, drivers are frequently put through refresher courses which pertain to driving, operation of pumps, etc.

* * *

The following replies are in answer to a previous question on salvage work.

Rufus Dorman, Chief, LaGrange, Ga.: Our department performs salvage work and carries three covers on each pumper and ladder truck and one in the chief's car.

Benefits from this work result in savings in property damage, lower insurance rates, the preservation of sentimental items that could not be replaced and the knowledge that property owners don't feel quite as bad about a fire if they see that proper salvage work has cut down on the amount of damage caused. A better working department results when the men know they have left a job well done. It gives the firemen a feeling of more responsibility towards other people's property and also creates a bond of friendship between the public and themselves. The public has a deeper feeling of safety and security knowing their property will be looked after properly in case of fire. They also get a savings in property losses and in insurance rates because of low fire losses.

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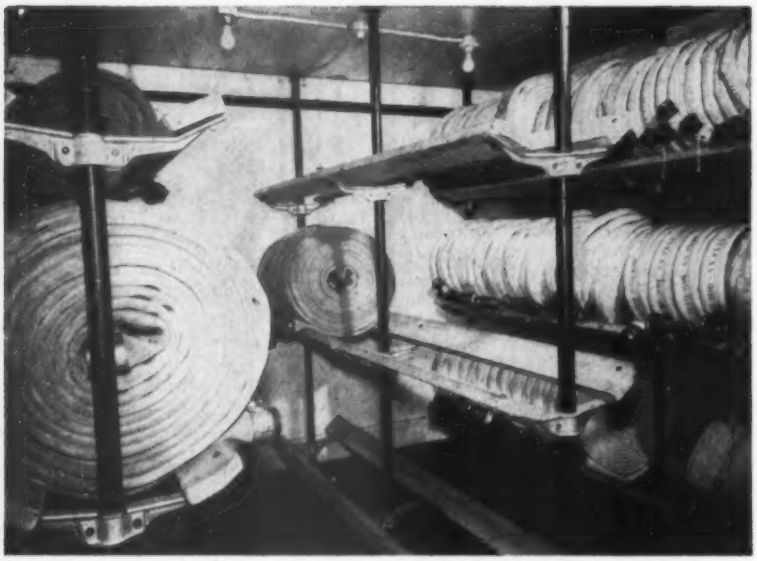

Photo Courtesy Wichita Fire Station No. 1

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FEATURES

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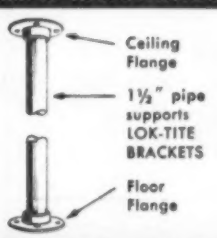
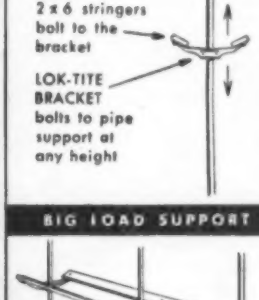


EASY ADJUSTMENT



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Frank W. Everett, Chief, Rochester, Minn.: We do salvage work along with our other activities. Ladder trucks carry twelve tarpaulins and pumpers carry two.

We believe that we are saving property owners some money by preventing water damage to household goods and stock. It is indeed more work for the fire department, but I believe it makes the firemen feel better knowing that they have done a good job and this offsets the extra work. It is one way of fostering good public relations.

We pump out basements after a fire, if necessary; remove water from building, clean out all debris and do whatever work is necessary to put the place back in some kind of order.

E. C. White, Chief, Wichita Falls, Tex.: At this time we do not have any covers in our department, but are in the process of purchasing from ten to fifteen. They will be placed on the No. 1 squad and on pumpers.

We feel this work will effect great savings. Many hard to replace items can be saved.

It can be very good public relations, for it gives the firemen a chance to do the things they would like to do in their work. The public will feel that they have a first class fire department.

We try to leave the premises in a good clean condition by sweeping out water, taking all burned and ruined furniture outside, often making the fire station the headquarters for bringing articles of clothing for families who have lost all in the fire.

John T. Dineen, Chief, Lawrence, Mass.: Our department performs salvage work as a regular activity at fires. From six to twelve covers are carried on pumpers, ladders and rescue truck.

We believe that as a result of this work, there is a better feeling on the part of the public towards members of the department.

In addition to spreading covers, we cover up and remove stock from cellars, remove water from cellars, cover furniture, remove water from broken water pipes and leaking roofs, cover roofs with salvage covers during rain storms as well as covering store windows in wind storms. We remove all water from buildings so they can start repairing as soon as possible.

Fire Alarm System for Deaf Children

How do you set up a fire alarm system in a school for deaf children?

The newly-installed $22,000 fire alarm system in the Mystic, Conn., Oral School not only sounds bells, but flashes amber lights throughout the school's buildings.

Laurette J. Beckwith, of New London, a representative in the Connecticut State Legislature, disclosed that recently when she urged the Legislature's Public Welfare and Humane Institutions Committee to approve a $3,000 appropriation to connect the Oral School's fire alarm system with that of the Mystic Fire District. Under the present setup, it is necessary to use the telephone to call the Fire Department to the school.

TOM MAGNER

Questions and Answers

Calculating Nozzle Pressure

To the Editor:

I have reference to your book "Simplified Fire Department Hydraulics, fifth edition 1938, Page 59, 'Calculating Nozzle Pressure Where Discharge and Hose Diameter Are Known,'" but have been unable to work the problems out. I would appreciate your solving a typical one for me.

G. C. D.

Answer: The following example in the use of the formula for determining nozzle pressure where the discharge and nozzle diameter are known will probably answer your question.

The formula is as follows:

$$\text{Nozzle Pressure} = \frac{\text{Discharge (GPM)}}{29.7\ d^2} \times \frac{\text{Discharge (GPM)}}{29.7\ d^2}$$

Suppose the discharge is 300 gallons per minute, and suppose the nozzle diameter is 1½-inches. Here's how the problem would be worked out:

d^2 is the square of the diameter, or in this case, $1\frac{1}{2} \times 1\frac{1}{2}$, or 1.5×1.5, or 2.25.

Put the values of Discharge (GPM) and d^2 in the formula, and we have:

$$\text{N. P.} = \frac{300}{29.7 \times 2.25} \times \frac{300}{29.7 \times 2.25}$$

Multiply $29.7 \times 2.25 = 66{,}825$ (or 66.8 approximately)

Put this value in the formula and then it becomes:

$$\text{N. P.} = \frac{300}{66.8} \times \frac{300}{66.8}$$

Divide 300 by 66.8, and we get 4.49

Then the formula becomes:

$\text{N. P.} = 4.49 \times 4.49$

$= 20.16$, or 20 pounds nozzle pressure approximately.

Hydrant Supply

To the Editor:

1. We have a hydrant with a static pressure of 90 pounds and a flow through a 2½-inch outlet of 580 gallons per minute. A 300-foot supply line of 2½-inch hose is supplied from a lift 10 feet. Pitot gauge shows the flow to be 260 gallons per minute and 2½ pounds butt pressure. Would it be best to figure flow with open hose line or would it be better to attach a nozzle? How accurate would it be?

How can you account for so much loss in flow? How would you figure friction loss here?

2. A 50-foot line of 2½-inch hose is supplying a pumper from which three lines are stretched: a booster line with a ½-inch tip discharging 13 gpm at 55 nozzle pressure; a booster line with a ⅜-inch tip discharging 29 gpm at 50 pounds nozzle pressure and a 200-foot line of 1½-inch hose equipped with a ½-inch tip discharg-

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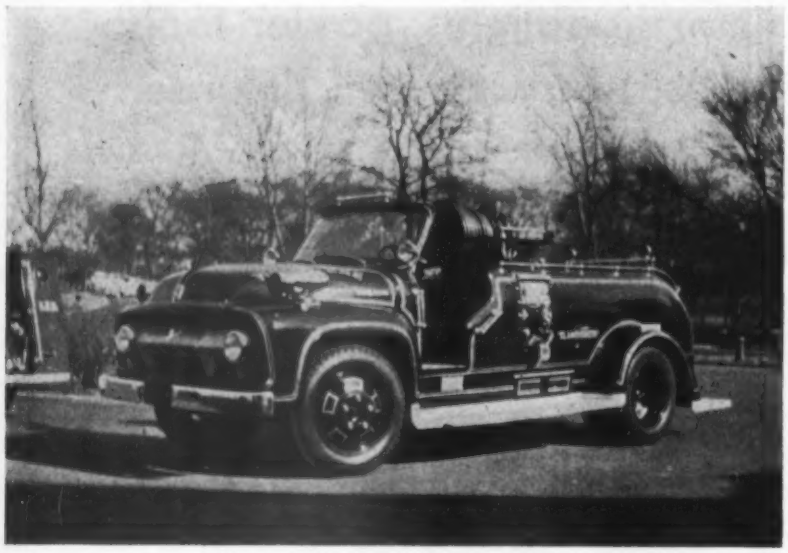

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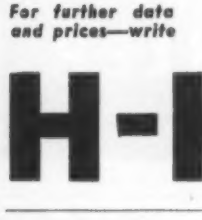

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ing 99 gpm at 60 pounds nozzle pressure. Engine pressure is 100 pounds and static pressure, 5 pounds. Please explain how it is possible to get any water from this hydrant when static and flow pressures are so low.

J. A. G.

Answer: It makes little difference whether flow is calculated from open lines or by use of nozzles, as long as the gauging and calculations are accurate. Ordinarily, the unskilled operator may get better results by using a nozzle and pitot tube for determining discharge, or flow.

In one sketch you show a hydrant with a static pressure of 90 pounds, and a flow from a 2½-inch outlet of 580 gallons per minute. When a 300-foot supply line is attached to the outlet of this hydrant and the discharge taken on 2½-inch open butt, you have but 2.5 pounds butt pressure and 260 gallons per minute flow.

To calculate the friction loss, we use the formula:

Friction Loss $= 2\ Q^2 + Q$, where Q is the flow measured in hundreds of gallons per minute.

As you find, the flow is 260 gallons per minute, and the value of Q will be 2.6.

Substituting this value in the formula we get:

F. L. $= 2 \times 2.6 \times 2.6 + 2.6$
$= 16.12$ pounds per hundred feet, or 48.36 pounds for 300 feet of 2½-inch hose.

Adding the 2.5 pounds butt pressure to the 48.36 pounds friction loss, we have a pressure of approximately 50 pounds (50.86) at the hydrant outlet while water is flowing. This would indicate that there is a drop of approximately 40 pounds in the pressure in the hydrant when 260 gallons per minute are flowing from it. This would indicate either a small main which feeds the hydrant, or a very long one. In either case there would be a drop in pressure in the main system from the point where the main feeding the hydrant is attached to the supply main to the hydrant of approximately 40 pounds.

In the second layout you show, 50 feet of 2½-inch hose is supplying a pumper from which are laid three lines: a booster line with 1¼-inch tip, a booster line with ⅜-inch tip and a 1⅛-inch line with ½-inch tip. Nozzle pressure at the first line is 55 pounds and discharge 13 gallons per minute; nozzle pressure at the second line is 50 pounds, and discharge, 29 gallons per minute; nozzle pressure on the third line is 60 pounds and the discharge is 99 gallons per minute. The engine is operating at 100 pounds pressure.

The discharge from these three lines will be 13 + 29 + 99, or 141 gallons per minute.

The friction loss in the 50-foot line of 2½-inch hose carrying 141 gallons per minute is approximately 2.6 pounds. Thus we would have 5 — 2.6, or 2.4 pounds pressure at the inlet of the pumper.

An open butt on a 2½-inch line of hose with a pressure of 2.4 pounds should discharge in the neighborhood of 260 gallons per minute. Thus the hydrant would supply sufficient water to the pumper to handle the layout you give.

Engine Pressure When Pumping Up to Elevation

To the Editor:

We have a 100-foot all metal aerial with a ladder pipe. Tips used are 1⅜, 1½ and 1⅝ inches. The ladder pipe is used on the bed ladder, which is about 45 feet up from the ground when in use. We use one 50-foot section of 3-inch double jacket rubber-lined hose with 2½-inch standard hose couplings and a 3-way 2½-inch siamese on the ground. Do you figure friction loss for the 3-inch hose disregarding the couplings, or do you allow for the 2½-inch couplings?

What would the engine pressure be in the following layout: Two 200-foot lines of 2½-inch hose stretched from pumper and siamesed into a 50-foot length of 3-inch hose with 2½-inch couplings, to the ladder pipe, which is equipped with a 1½-inch tip. Nozzle pressure is 70 pounds. Elevation is 48 feet.

W. A. J.

Answer: Normally the friction loss for 3-inch hose with 2½-inch couplings is considered, for short stretches, as equal to the friction loss for 3-inch hose with 3-inch couplings.

The friction loss imposed by the smaller couplings is negligible as you will see from the following:

For a flow of 300 gallons per minute, the friction loss in 3-inch hose with 2½-inch coupling is 8½ pounds per hundred feet. For 3-inch hose with 3-inch coupling, the friction loss is 8 pounds per hundred feet. There is a difference of ½ pound friction loss for 100-foot stretch. You can appreciate that this is a very minor factor, and can safely be ignored.

And now to answer the questions you ask:

An engine is pumping through two 200-foot lines of 2½-inch hose to a siamese connection from which 50 feet of 3-inch hose having 2½-inch coupling is stretched up to a ladder pipe of 1½-inch diameter, 70 pounds nozzle pressure, 48 feet above the pumper outlet.

In solving for engine pressure, we first change the entire layout to the equivalent of a single line of 2½-inch hose.

Parallel lines of 2½-inch hose 200 feet in length are equivalent to 200 ÷ 3.6, or 55.6 feet of a single line of 2½-inch hose.

Fifty feet of 3-inch hose is equivalent to 50 ÷ 2.6, or 19.23 feet of 2½-inch hose.

Thus the entire layout is equivalent to 74.79 feet of 2½-inch hose laid as a single line.

Engine pressure = nozzle pressure × (1.1 + KL)

K, for 1½-inch nozzle on 2½-inch hose, is .505.

L, the number of 50-foot lengths in the line, is 74.79 ÷ 50, or 1.496.

Then E. P. =

$$70 \times (1.1 + .505 \times 1.496)$$
$$= 70 \times 1.855$$
$$= 129.85$$

The back pressure, represented by 48-foot elevation of nozzle, is equal to .434 × 48, or 20.83 pounds.

Then the corrected engine pressure

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will be the pressure secured by formula, namely, 129.85 + the back pressure, 20.83, or 150.68, or 150 pounds approximately.

World Wide Fire News

By Roi B. Woolley

Freak Fire

A schoolboy's chemistry set, lying forgotten in an upstairs room, burst into flames four years after its owner left to be married—and burned three people.

The first hint of trouble came from a little girl who lived next door to the house in Enfield (England) which was concerned. She told her father about a "funny smell" whereupon the father ran into the next-door house and sped upstairs with the two occupants.

They saw flaming liquid running under a door, so they got a garden hose on the flame but it burnt the two men and then caught the lady's dress and burned her.

By now bright particles were floating out into the street.

The explanation of it all was that water in which phosphorus was kept evaporated. The phosphorus became active and ate through two lead-sealed containers—part of the chemistry set which had long since been forgotten.

(*as recorded in the Post Magazine and Insurance Monitor, London, Eng.*)

* * *

Jap Fire Too Fishy to Follow

That's the way the story was captioned. It told about one Kanekichi Hashimoto, a 55-year-old Jap welder with an inventive, and pyromaniacal, turn of mind.

Kanekichi was held for burning down his house for insurance with an invention that depended upon a cat's fondness for fish. It's not exactly the kind of a "gadget" that should find a place in this Journal's "Short Cuts & Gadgets" Column, but it's worth describing.

Hashimoto, like all arsonists who are alibi conscious, wishing to be absent when the fire started, put a pail of gasoline in a closet.

He set an electric heater on top of the pail, placed a celluloid soap box on the heater, connected the switch to the heater. Then he ran a long cord outside the house and attached a piece of dried fish to the end of the cord.

The device worked perfectly, police say:

A stray cat tugged at the fish;
Pulling the cord that
Snapped on the heater, that
Ignited the soap box, that
Fell into the gasoline, that
Ignited and burned the house down.

Hasi's work was in vain, however, for the police caught up with him. Somehow or other the fire failed to eradicate all the evidence of the gadget!

* * *

Pipeline Blasts Kill Five

Two natural gas pipeline explosions within two days of each other in widely spaced areas brought death to a safety director and four men and caused raging fires.

Near Zanesville, Ohio, a section of the

"big inch" natural gas pipeline exploded on the night of March 7th, shooting into the air flames visible to people 100 miles away, according to press reports.

The flames lit up the sky two miles east of the pottery village of Roseville for about two hours before workers of the Texas Eastern Gas Transmisson Co. were able to shut off the gas. The flames shot 300 to 400 feet into the air.

The line reportedly is one of three that travel side by side. A 24-incher exploded from a cause not disclosed. The lines carry gas to New York, Pennsylvania and some New England states.

The second and fatal blast occurred March 9th in a 22-inch natural gas pipeline near Valparaiso, Ind., and was said to have been caused by a bulldozer which knocked supports from beneath the line.

The victims were members of a crew working for the Michigan & Wisconsin Pipeline Co. They were relocating the line to clear the right of way for the east-west toll road being built across northern Indiana.

Fire raged for several hours. Traffic was blocked on Route 49 and U.S. Route 6. Among the dead was the 45-year-old safety director for the pipeline company.

The pipeline carries gas from Oklahoma to Detroit.

* * *

From the World News Ticker

News accounts had it this way: *"Rustles Her Bustle—Factory Explodes."* It was all about a spark from a woman worker's rustling nylon underwear which is believed may have caused a January explosion that killed one worker and injured 12 more near Stockholm, Sweden. The blast occurred in the Lindesberg ammunition factory. . . . In Slagelse, Denmark, telephone officials warned a woman to stop laughing over the phone because her giggling plays havoc with the dial system. They said the woman's high-pitched giggle is just like the automatic dial cutoff tone and breaks the connections on lines that can carry 48 conversations simultaneously. Gosh! It'd be just too bad if the woman was trying to report a fire, huh! . . . Japanese national fire prevention headquarters in Januarv warned the country's firemen against drinking on the job. Headquarters said 50 firemen were killed or injured over the holiday season in road accidents. The worst accident, it was reported, occurred when a drunken fireman drove a fire engine off a road bank, killing three and injuring 14 (Thanks Bob Byrus). . . . More than 1,300 students and teachers were evacuated from St. Monica's Catholic School, Santa Monica, Calif., Feb. 1 last, after police received an anonymous warning that a bomb was planted there. No explosives were found. . . . . Regina's (Sask.) most destructive fire caused a loss of an estimated $2 million in little more than an hour on Jan. 28, 1955, burning through two sections of the huge World Grain Show building on the Exhibition Grounds. . . . . The Swedish motorship Nordanland sunk in Genoa's (Italy) worst storm in 50 years; burst into flames after a series of explosions caused by water reaching its carbide cargo. About 20 blasts from the exploding cargo wrecked part of the docks and shattered windows a mile away. . . . A speeding bus hit a tree in Vigo, Spain, on Feb. 26 last, and 29 of the 40 persons aboard perished in the ensuing flames. Relatives of the dead tried to lynch the driver but police saved him. . . . Fire,

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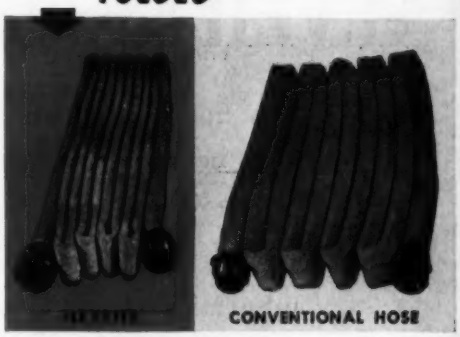

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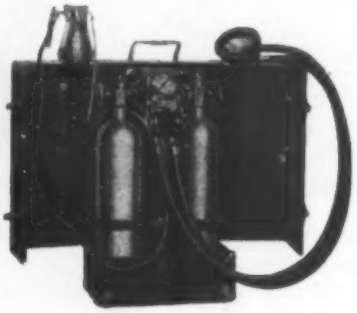

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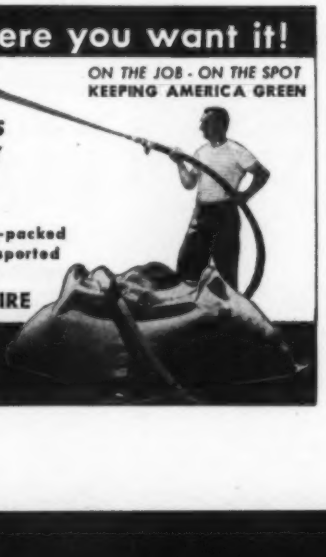

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whipped by high winds on Feb. 26, destroyed 110 houses in the Iranian village of Sarkhangkelateh near Gorgan, south of the Soviet border. One child was burned to death and a woman dropped dead from fear. Village was levelled in four hours, reports said. . . . A coroner's inquest was told that a mother of seven children in Colombo, Ceylon, committed suicide by drenching herself with kerosene and then setting fire to herself because of wagging tongues. She told her husband in a letter that she was taking her life because of malicious gossip. . . . Four British soldiers in Austria died March 11 in a burning barn and at least eight others were seriously injured or burned, according to U. S. Army Hq. in Salzburg, Austria. The British were taking part in a "troop exercise" in the U. S. Zone of Austria, and were in a loft resting and eating. Cause of the fire was not dislosed. . . . Mrs. Eleanor Dixon, wife of George Dixon, newspaper columnist, died in her Washington, D. C., apartment March 8, probably the victim of a mattress fire started by a cigarette. . . . Fire destroyed an office building in Birmingham, England, on March 12, causing estimated damage of $3 million. It took 200 firemen with 30 pumps more than two hours to bring the flames under control. . . . In Hammond, Ind., Civil Defense chief, Ralph Thorsen, parked a truck-borne siren downtown on March 9th last, and cut loose with a super-dooper wail. Police, fire and newspaper switchboards were jammed with calls of puzzled citizens. No C. D. test had been announced. Thorsen said he was tired of planned tests that got no attention. "By golly, they're all paying attention now," he said. . . . In Southampton, England, firemen hustled aboard the 83,000-ton liner Queen Elizabeth on March 6 and quickly put out a small blaze that broke out behind paneling in one of her cabins. Four engines and a fireboat sped to the drydock where the ship was having her annual overhaul. . . . Far away, in Wellington, New Zealand, firemen won a 36-hour battle also on March 6, to save the blazing 12,000-ton British freighter Hororata from total loss in the harbor.

Los Angeles Plans Expansion

Los Angeles holds its general municipal election on May 31 next. At that time a $4 million bond issue for the construction of 34 new fire stations will be submitted to the voters.

The City Council has drafted a resolution to place the issue on the ballot, after Chief John Alderson of the Los Angeles Fire Department said the amount is the minimum required for needed fire protection in the city.

The new stations would be constructed over a six-year period, most of them in areas of increasing population, although some of them are planned in older residential districts.

Considering that the city of Los Angeles has only just completed a building program involving some 25 fire stations, this further expansion would apppear to establish the L.A.F.D. as the unquestioned leader in fire station construction.

This action follows hard on the heels of another extensive development in Los Angeles County, where the L.A. County Fire Department, under Chief Keith Klinger, is building some 20 to 30 new stations.

Persons in the News

Evans Appointed Savannah Chief

J. L. (Lonnie) Evans, who retired in 1951 as a battalion chief with the Savannah, Ga., Fire Department after 27 years' service, was appointed Chief of the Department on Feb. 9, 1955. He suceeds Walter S. Blanton, who has applied for retirement after 25 years' service.

For the past three years, Chief Evans has held the strategic position of assistant fire chief of the H-bomb installation in South Carolina.

Chief Evans was appointed to the department in 1924 and was made battalion chief in 1944.

F. E. Saefke New Fargo Chief

Fred E. Saefke was appointed head of the Fargo, N. Dak., Fire Department in February, 1955, to succeed Fred J. Wells. He has been acting chief since May 1, 1954.

The new chief has seen 36 years service with the department and has worked his way to his present post through the ranks.

William T. Stewart is assistant chief.

Fire Marshal Yockers Asked to Keep Post

Joe R. Yockers, State Fire Marshal of California since 1943, has been asked by Governor Goodwin J. Knight to retain his post.

Fire Marshal Yockers, who was first appointed by former Governor Earl Warren, will continue to serve at the pleasure of Governor Knight.

PAUL DITZEL.

Decatur Chief Retires

Chief Ira D. Leech has retired from the Decatur, Ill., Fire Department March 1, 1955, after having served 33 years and 9 months in the department. He has been Chief since 1946, when he succeeded Chief Sam Crow. Chief Leech was named to the department in 1920, was made captain in 1939 and appointed assistant chief in 1944.

Harry E. Newell to Retire

Harry E. Newell, for many years assistant chief engineer of the National Board of Fire Underwriters, is on leave of absence preparatory to retirement after close to a half-century of service. A leader in the fire prevention standard-making activities of the National Board, he at one time was mayor of Bloomfield, N. J., where he lives.

Mr. Newell, who was born in Newark, N. J., on July 7, 1887, and attended the pubic schools there and Columbia University, joined the National Board of Fire Underwriters on October 1, 1909. Before that he had worked in and around Newark on engineering surveying crews of the Lackawanna Railroad and later in Cuba for the Spanish-American Iron Co.

With the National Board his activities were responsible for outstanding accomplishments in the development of various

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standards such as those having to do with flammable liquids, gases, house piping for city gas, and installation requirements for liquefied petroleum gases.

It was in connection with these activities that he was elected to honorary life membership in the American Society of Civil Egnineers, made a life member of both the National Fire Protection Association and the Liquefied Petroleum Gas Association, awarded the Moorehead Medal for Installation Requirements of Acetylene Generators, and cited by the Liquefied Petroleum Gas Association.

Early in his career Mr. Newell was also cited by the U. S. Army for developing engineering standards for military purposes. This honor developed out of his World War I service, when he headed the War Department's Bureau of Fire Prevention that had been established by the National Board at the request of President Wilson and it foreshadowed his World War II service, when he assisted in the supervision of the Government's shipbuilding operations.

Com'r M. J. Corrigan Retires

Mayor Kennelly, of Chicago, Ill., accepted the resignation of Michael J. Corrigan, 78, as fire commissioner, effective in March, and stated that Anthony J. Mullaney, assistant fire commissioner, would succeed him.

Com'r. Corrigan joined the department in 1893 at the age of 17 in the days of horse drawn fire equipment, wooden sidewalks, gas lights, and mud streets. He rose through the ranks to battalion chief in 1910, chief fire marshal in 1927, and fire commissioner in 1936.

He won the Lambert Tree medal for bravery in 1917 and has a long list of honorable mentions. He has directed firemen at every major fire and disaster in Chicago for more than 30 years.

Chief Mullaney has held every civil service position in the department, except that of marine pilot, in his 41 years as a fireman. He was chief fire marshal from 1936 to 1951, and has been assistant commissioner since.

Hutzley to Retire

Curtis W. Hutzley, Master-Sergeant, U.S.A.F. specialist in crash-rescue and structural fire fighting during 18 of his 20 years military service, is retiring to seek a position in industrial fire protection.

He served as fire chief in Europe and Asiatic Pacific as an enlisted man, and has specialized in air-crash rescue and industrial fire fighting. He is a graduate of Navy and Air Force Fire Schools. He is located at 366th Installations Sqdn., Alexandria Air Force Base, Alexandria, La.

Captain Ben Renfro Named Photo and Publicity Head

Captain Ben Renfro recently was appointed head of the Los Angeles Fire Department's Photo and Publicity Section, succeeding Captain Claude A. Conlin, Jr., who retired.

This section, still relatively unique in the nation's fire service, performs a two-fold public relations job.

Official L.A.F.D. Photo by Lynch

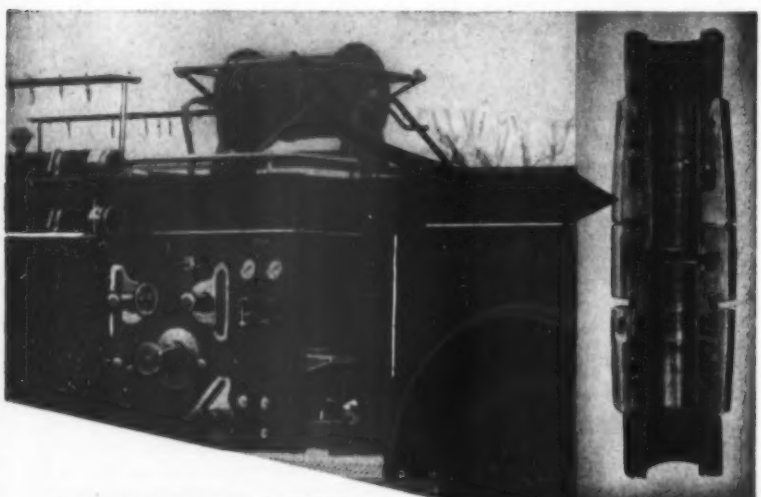
Captain Ben Renfro

Captain Renfro's detail prepares and films training and fire prevention movies which under Captain Conlin won the Los Angeles Fire Department international acclaim. Many of the movies are shown on area television shows.

Moreover, Captain Renfro and his detail serves as a liaison group between the Los Angeles Fire Department and Southern California's hundreds of newspapers, television and radio stations.

Most of the detail's work is done in the field and Captain Renfro himself responds on nearly all greater alarms and mutual aid calls.

The captain and members of his detail frequently appear on television



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shows to promote fire prevention work and one member, Inspector Robert Patterson, broadcasts a three-times-a-week radio show based upon on-the-scene tape recordings made at fires and other incidents where the department is called out.

Captain Renfro is particularly well suited to his new post because of his thorough knowledge of departmental operations plus the work of allied city and county bodies that he obtained during his previous assignments on truck and engine companies and nine years service as an aide to Chief Curtis Hart, head of communications, maps and drafting.

PAUL DITZEL

Obituaries

Ex-Chief A. B. Foy Dead

Albert B. Foy, Chief of the South Manchester, Conn., Fire Department for 25 years until his retirement July 1, 1950, died suddenly in St. Petersburg, Fla., March 6. He was 72 years of age. Chief Foy suffered an attack and was rushed to a St. Petersburg hospital, where he died a few hours later.

A native of Manchester, Chief Foy was the department's first permanent fire chief. He took over as head of the department when it went on a full time basis in 1925, after serving for 10 years as a foreman of Company No. 2.

During his 25 years as fire chief he performed innumerable duties, including the administration of the South Manchester Fire Department, in charge of all apparatus, fire marshal and general chairman of all social activities.

Chief Foy was a former vice president of the New England Fire Chiefs' Association, and for several years was an active member of the Connecticut State Fire Chiefs' Association. He also was a member of the International Association of Fire Chiefs, and was at one time president of the Hartford County Fire Chiefs' Association.

TOM MAGNER

Capt. Wise of Miami Dead

Captain Perry Donaldson Wise, 29, one of the youngest ranking officers of the Miami, Fla., Fire Department died December 26, 1955. A veteran of World War II, he gained his rank in the department rapidly, having joined it less than seven years ago.

Surviving are a wife, two sons, two brothers and a sister.

Chief A. B. Lloyd of Raleigh Dead

Alvin Brown Lloyd, 63, for the past five years Chief of the Raleigh, N. C., Fire Department, died of a heart ailment, February 25, 1955.

He joined the Raleigh Department in 1919, was promoted to lieutenant in 1926, to captain the following year, second assistant chief in 1939, and first assistant in 1941. He was made acting chief in 1950, succeeding Chief W. R. Butts who resigned, and that same year was appointed permanent chief.

Chief Lloyd was a member of the International Association of Fire Chiefs and the N. C. State Fire Chiefs Association.

Jack B. Keeter was named chief, to

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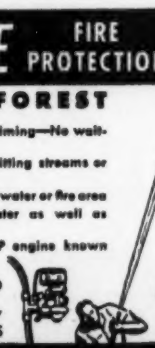

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fill the vacancy caused by the death of Chief Lloyd. He has been assistant chief since 1952.

The new Chief joined the department in 1931 and is a graduate of the North Carolina Fire and Drill School.

Captain J. M. Burnette has been advanced to the position of assistant chief.

Among the Buffs

By Paul C. Ditzel

SOME people like humor of the belly-busting type. Others are satisfied with George Gobel. As for me, I'll take the British fire service's journal, Fire Protection Review, for I suspect Editor Geoffrey F. D. Pratt has a wry sense of humor. And you can't hardly find that no more.

Example:

Firemen of Gullane, East Lothian, responded in frigid weather to a working fire in a factory. They had to use "blow-lamps" to remove frozen hydrant covers before they could couple up. The fire? It was in an ice cream factory. Jolly Good Humor, that Chap Pratt.

Example Again:

The magazine tells of a book, "Just Wandering in Devon," which describes a turnout of the Exeter Fire Brigade on a mutual aid call to Honiton Clyst, 5 miles away. The response, in 1834, took 32 minutes! The delay was occasioned by the necessity of contacting the mayor of the alarmed city and having him sign a declaration pledging return of the engine when it was no longer wanted.

"In the 1800's," said the book's author, Eric R. Delderfield, "fire fighting was quite a popular pastime, for it was the practice to open the public house nearest the conflagration so that the men working the manual pumps could be refreshed with beer, and the motto of the day was, 'No beer, no water.' Large beakers for supplying beer to the men were a normal part of the fire fighting equipment."

Guess they had some pretty good ideas in those days. The motto of today seems to be, "No beer, no put out fire." For in Comstock, Minn., firemen ran out of water at a grocery store blaze. They made a good stop, however, by breaking beer bottles in a tavern next door and pouring the contents on the saloon wall.

(The things you learn by reading this column.)

Before you switch on your television set tonight, hear this:

The good citizens of Droitwich, England—along Friar Street to be exact, are a bit nippy and have protested an alarming situation to the Town Council, to the nearby Worcester City and County Fire Brigade Commission and on down the line.

Seems they can't watch their television programs because of all the ruckus caused by the Friar Street fire appliances when they push off. Maybe they should know the story of Albert L. Woods of Long Beach, Calif.

Woods became distressed the other night when his television set began flickering. Instead of cussing out the fire department, for he, too, could hear sirens, he went outside to see if his antenna had fallen. The antenna was still there, but about to collapse as smoke

and flames billowed out of the upper half of his two-story frame duplex.

Department of Miscellaneous Information: Leather hose is still made at Newcastle-on-Tyne for fire fighting purposes. It's being made in the same plant that wove the sails for Nelson's flagship, "Victory." (Wonder if they've heard of the Nautilus?)

Incidentally, this column gets frequent requests for information on Editor Pratt's magazine. The monthly magazine and yearbook are put out by him at Benn Brothers, Ltd., Bouverie House, Fleet Street, London, E.C.4. Annual subscription is 20 shillings to all parts of the world. (I've given you this much information; the least you can do is translate shillings into dollars and cents. The things you don't learn in this column!)

For you erstwhile collectors of things firemaniacal, I refer you to my good friend and compatriot, Buff Harold Bruno, Jr., of 7764 North Bosworth Ave., Chicago. Brother Bruno is a newspaper reporter there and has been dogging it the past few weeks, compiling all sorts of vitally useful data on the science cherished by us all. Right now he's got a by-lined series on Chicago's Fire Dogs running in the local Hearst throwaway.

A late dispatch from Buff Bruno's typewriter offers free copies of his series, byline still attched of course, to the first 50 fans who write him. He's also got some specifications, circa 1876, on wood ladders still in use around Chicago. The Windy City and Bruno, as you know, are firm followers of the wooden big stick. Hal says he'll be glad to part with the several copies and pictures of these old aerials, some still in use, to whoever writes first. Seems the Hearst paper is running some sort of promotional contest along with Brother Bruno's excellent series. This column is reliably informed that one of the prizes is an old axe used to break down the door of Mrs. O'Leary's barn. The chopper still carries the name of the Little Giant Fire Company and Chief Musham, who was the first officer on the scene when The Great Chicago Fire was still a 2-11.

I'll never forget the frosty night I first met Brer Bruno. He was buffing at a 5-11 alarmer at 19th and State Streets in the Warshawsky Furniture Co., with his pal, Les Morris, who has since departed Chicago to enjoy the Southern California sun and other attractions. While rolling hose that night, Hal Bruno's turnout pants developed a rip, or rather they were demolished. Nevertheless, though risking pneumonia, Bruno refused to cover up. Of such things are Chicago Buffs Bruno and Morris made.

That's about it for this month. Keep sending along the news and anecdotes about you and your clubs. The address remains the same: 419 Napoleon St., Playa del Rey, Calif.

Chief Quits Over Sleeping-in

Because a sleep-in rule established by the Amsterdam, N. Y., common council would compel him to put in 84 hours a week, Fire Chief Edward C. Buhrmaster has resigned. The council ordered him to alternate 24-hour duty assignments with his assistant and sleep in the station while on duty. The assistant, Sam Palombo was named chief.

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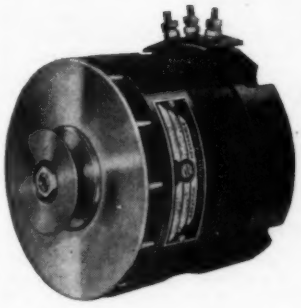

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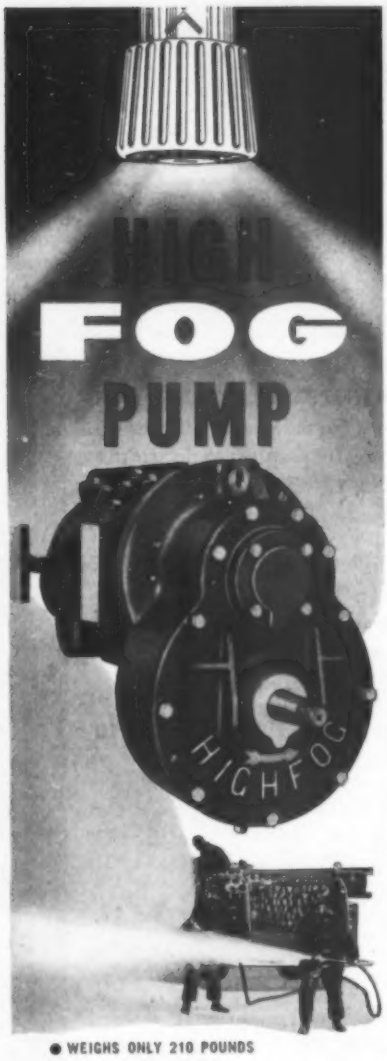
FIRE HOSE



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ASSOCIATED FIRE EQUIPMENT CO.
1915 S. SAN PEDRO ST., LOS ANGELES, CALIFORNIA

The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

Fire the Kibitzer

It was February. Also, it was cold in Pittsburgh. There had been plenty of fires to keep the Brothers of the Steel City's Fire Department busy. But the smokeaters of Engine 9 appeared to be in a district where—temporarily, at least, bells and radio were quiet.

So, according to the press, while congratulating themselves on the momentary calm, they sat them down to enjoy a game of pinochle.

All was going well when the front door burst open and a passerby shouted: "Hey you guys, your roof's on fire!"

Sure enough, the cornice of the firehouse was smoldering from a defective flue.

It was nearly an hour before the lads were able to resume their pinochle game.

* * *

False Alarmer Gets the Gong!

Can it be the millenium has arrived? Utopia just around the corner? It looks like it—from the viewpoint af false alarms, at least!

For many years FIRE ENGINEERING has joined the pleas of experienced and exasperated fire officers in demanding some punishment that would fit the crime of pulling false alarms. All in vain—with but a few exceptions. That is, until the other day, when a Brooklyn youth received a sentence of one year in the penitentiary for sounding a malicious false alarm.

It was the stiffest jail term ever imposed for the offense in the City of New York. And it is due to New York's Fire Commissioner, Edward F. Cavanagh, Jr., and to Magistrate Anthony Maglio of Bay Ridge Court, Brooklyn.

Ever since Commissioner Cavanagh took office, he has waged war on false alarmers, but with indifferent success until last September, when a change in the New York Administrative Code increased the false-alarm punishment from a maximum of thirty days to one year. The maximum fine was increased at the same time from $100 to $1,000.

About that time, also, the Fire Department instituted a real drive against the evil.

The perpetrator who was sent up is one John L. Mahoney, 19, unemployed seaman of Manhattan. He was nabbed by Patrolman Raymond Rupelli at 3:00 a.m. of a March morning, pulling a box at 82nd St. and Fifth Ave.

"The Court should have the guts to use the law" said Magistrate Maglio. Although Mahoney admitted pulling the alarm, his excuse was that he had not been fully aware of his action, which brought eight pieces of apparatus to the false call.

The Magistrate said the fact that Mahoney had committed his misdeed under the influence of liquor "is of small consolation to a fireman's widow who is left to bring up small children."

"I must in all my conscience keep in mind the risk to firemen's lives and the waste of the taxpayer's money because of these false alarms," he added. "Those who come before me for this offense will cool their heels for a year."

Fire Commissioner Cavanagh expressed gratification with the severity of the sentence. He said "It's only what the man deserved," and pointed out that 12,427 malicious false alarms had been turned in last year at an unnecessary cost to the city of $900,000. Last July two New York City firemen were killed and nine injured in Corona, Queens, as a result of a collision between two fire department vehicles returning from a false alarm.

* * *

Fire Fails to Cooperate

Fire fighters of Flint, Mich., are just that — fire fighters. As fire-starters, they're not so hot—or at least so says the way ward press.

Seems that come Fire Prevention time, the lads were completely stymied when they set about trying to set a fire. They were scheduled to demonstrate their fire fighting techniques on a 10 by 10 ft. shack erected for the occasion (outa wood, not stone, mindya).

As the crowd looked on, with bated breath, Asst. Fire Chief Elmer Pratt and his men tried time and time again to touch off the structure. But alas and alack, to no avail.

Finally, embarrassed Brothers called off the demonstration and headed for quarters, frustrated, and unhappy about the whole thing.

Said Chief Pratt philosophically: "It would be well if it were as difficult as this to start a fire all the time."

* * *

Surprise! Surprise!

Firemen out Indianapolis-way, who sped to extinguish an automobile fire, got a surprise when they lifted the hood of the vehicle. No motor!

* * *

A Case of Mixed Metaphors?

The Chief of a certain New York State Fire Department is required to attend all village board meetings in his town.

A short time ago the then Fire Chief, in his official capacity as head of the department, asked the Board for the right to purchase some fire equipment. Among the items requested were two bastard adapters.

Just before the close of the meeting the clerk, as is his wont, read the minutes. After the reading Hizzoner the Mayor asked if there were any errors or omissions.

One of the astutute (?) members of the Village Board said he allowed as how the Clerk had made a mistake in the wording of one of the sentences. She had said that the Fire Chief had asked for two bastard adapters. This was not right, the Board member said; the sentence should read "the bastard Fire Chief had asked for two adapters." —Thanks J. J. DOLEY.

* * *

Hot Off the Tape

Walter Maynard, whose Portsmouth, Ohio, home had been flooded by the recent Ohio River rampage, built a fire in the fireplace to dry out the dwelling. High winds blew down the chimney and set fire to the structure, destroying it with estimated loss of $12,000. There ain't no justice . . . Things kinda broke

bad for Beverly, Mass., Brothers last January. On the night of the 14th, Engine 5 developed battery trouble while at a building fire and hadda be towed from the scene by Engine 8. Earlier in the week, Engines 5 and 2 experienced motor trouble; and the week before, the 31-year-old Ladder 3 broke down. Small wonder Fire Chief John E. Callely went into a huddle with the Mayor . . . Recently in Northampton, Mass., Mrs. Delia A. Gilrain was alone in her house when she smelled smoke. She found the cellar ablaze and calmly telephoned the fire department, and then sat down to await the arrival of help. She's 91 years old . . . In Fresno, Calif., hunting ammunition exploded when a house caught fire, but Jeffie Peden, only 8, braved the shots and flames to rescue her baby sister, Darlene. Orchids to the little lady . . . The vamps of a certain community that shall be nameless have set out to collect $6,500 to construct a building to house their $14,000 fire truck. They acquired the latter recently but have no place to house it . . . Fire in Jan. attributed to an oil heater, caused $1,000 damage to a barn in Wilson, N. Y. Volunteer fire companies from Wilson, Ransomville and Cambria extinguished the fire with water transported in tank trucks . . . Recently the Westfield, (Mass.) Fire Department installed a radio system. It paid out Jan. 23rd last, when the fire fighters answered two calls on Montgomery Rd. with one truck without having to return to headquarters. At 12:10 Engine 1 left the Arnold station to extinguish a grass fire. Five minutes later a call was received from a woman about 1½ miles away from the grass fire location for an overheated stove pipe. Engine 1 was notified by radio and hustled to the scene of the second fire. Loss was negligible. Capt. Carl Bowers said the use of radio saved time and possibly greater damage. It was the first actual use of the system for fire fighting . . . In Baltimore, a 15-year-old high school boy died Feb. 1 of burns said to be self-inflicted in a fit of despondency over poor school work . . . In Beacon, N. Y., J. Robert Cramer, volunteer fireman, died while fighting a tavern fire early on Jan. 29 last. He was found dead in an apartment above the town tavern and was believe to have gone to the apartment to rescue occupants reported to be in the building . . . For those who like to connect numerology with disasters, we quote this press report: Estimated damage in the two big fires in Binghamton and Johnson City, N. Y., earlier this winter, totals $1,300,000. The two dates they occurred. the 6th and 7th of Dec., totals 13. In the city fire, 13 volunteer fire companies stood by at fire stations while the regulars fought the big blazes. And incidentally, it has been 13 years since the Day of Infamy at Pearl Harbor . . . Fire finally compelled a 90-year-old woman to leave her rubbish-filled home on W. 45th Street, Manhattan. The first time she had been outside the building in 14 years . . . In McAlester, Okla., two Oklahoma Penitentiary inmates were turned into human torches last January when a fellow prisoner threw flammable fluid over them and touched it off with a match. One died . . . A Roanoke, Va., policeman found a letter mistakenly mailed in a fire alarm box 26 years before. The officer was investigating the 'call box' and said the letter was written Jan. 4, 1928. (Thanks Irving Johnson).

Imagine!

← FROM HERE TO HEADQUARTERS *without wiring!*

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RADIO OPERATED SIGNAL BOX SYSTEM

COST?

COMPARATIVELY LITTLE — ONE RECEIVER — AS MANY BOXES AS YOU WISH . . . . . BUT NO WIRING COST AT ALL . . . . .

Equally adaptable to any community—large or small — with or without existing alarm system. Ideal for manufacturing plants—big industrials—institutions—government installations. Simple—effective—dependable—and ECONOMICAL.

SIMPLE TIME TESTED OPERATION

1. Conventional manual switch activates powerful transmitter which sends coded alarm to fire house. Each box has its own code for instant location identification. **2.** Receiver in fire house and receiver in fire chief's car can receive and identify location of five hundred different boxes. **3.** Location of activised box is instantly sounded out on bell at fire house and in chief's car. **4.** Location of activized box can also be sounded on sirens, air whistles, etc., to alert volunteers and entire community to location of fire.

Write—

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"Nod and Shake" SMOKE MASK

Complete protection for eyes—throat —lungs! All rubber with natural sponge filter. Goggles, non-fogging, gas-tight. Fits any face.

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designed to materially increase the efficiency of your fire service—*even in the small community*—the Memco fits into any department, and is priced so that your own department can afford one.

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What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of March, 1955.

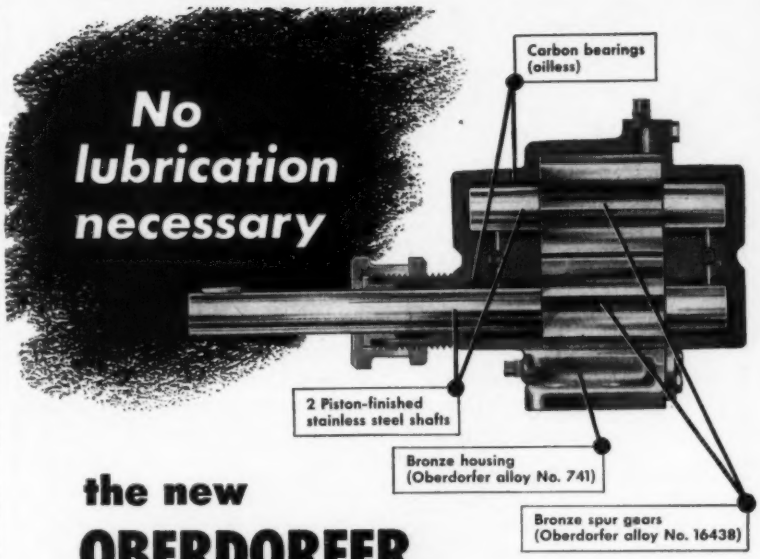
Month Ending March 31, 1955

Decatur, Ala.—Sherrow's Department Store, National Credit Clothing Co. store and Sears' Decatur store damaged.
Prichard, Ala.—Mobile Lumber Products box factory destroyed.
Belmont, Cal.—Pullman Hunting Lodge destroyed. Fireplace.
Lodi, Cal.—Jerry's Cafe completely gutted; two adjoining taverns heavily damaged.
Los Angeles, Cal.—B. G. Manufacturing Co. plant, Master Iron Foundry plant and Canady & Hudson destroyed.
Los Angeles, Cal.—Goodwill Industries warehouse and work center destroyed.
Millbrae, Cal.—Gene Bried Rugmaster store damaged.
Pacoima, Cal.—Hirschhorn Furniture Store damaged.
Rio Linda, Cal.—Horrell's Cash Market destroyed.
Roseville, Cal.—Tower Theatre damaged.
San Francisco, Cal.—Drydock of Sieverson & Columbia Machine Works, Pier 72, and old sugar refinery warehouse damaged.
Craig, Colo.—Yampa Hotel destroyed.
Denver, Colo.—Dorffler Horsemeat Packing Co. destroyed. Defective wiring.
Bridgeport, Conn.—Building in heart of business district, housing Pickwick Restaurant, House of Suede, a women's apparel store; Stuart's Sportswear Shop, Sy's Bar and Grill and Penfield Liquor Store, damaged.
Wilton, Conn.—Beecher's Garage on Route 7 and Heinbaugh Lumber and Supply Co. yard, damaged. Spark set fire to gasoline.
Middletown, Del.—Buildings on farm occupied by Earl Sheets, near Summitbridge, eight miles north, destroyed.
Washington, D. C.—Witt-Will Truck repair destroyed.
Atlanta, Ga.—State Farmers' Market damaged.
Augusta, Ga.—Colonial Club damaged.
Ashton, Ida.—R. O. Reinke grain elevator destroyed.
Grangeville, Ida.—Landreth Bros. sawmills, 3 miles east, destroyed.
Kellogg, Ida.—Bunker Hill Sullivan Mining Co. damaged.
Bartonville, Ill.—Johnson Implement Co. and Illini Foundry Co., destroyed.
Belleville, Ill.—Lee Shops, women's clothing store, destroyed.
Chicago, Ill.—Jackson Boulevard Christian Church and adjoining club and apartment building damaged.
Chicago, Ill.—Bake shop at Wieboldt department store, destroyed. Exploding oven.
Eleroy, Ill.—Principal business building in this Stephenson County town, housing seven businesses and two apartments, destroyed.
Lewiston, Ill.—Shull Bros. garage and implement store, destroyed. Short circuit.
Murphysboro, Ill.—Building in business district housing shoe store, dental office and some dwelling rooms, destroyed.
Gary, Ind.—Kostur Hotel destroyed.
Goshen, Ind.—Unopened Martin Shopping Center on U. S. 33, edge of town, damaged.
Atlantic, Ia.—Capelle Apartment Building, largest in Atlantic, destroyed.
Corydon, Ia.—Buildings housing R. R. Roush Drug Store, P. M. Place Variety Store and Glines & Co. mercantile store, destroyed; Hughes Electric & Television Shop, damaged.
Davenport, Ia.—Building housing McClelland Co., manufacturers of sashes and doors, damaged.
Des Moines, Ia.—Sargent and Co. plant, manufacturers of commercial feeds, destroyed.
Newton, Ia.—Building housing Walgreen Drug Store and offices of A. M. Miller, an attorney, Dr. C. J. Thielman, Dr. O. M. Bunker and Dr. L. H. Keoelling, damaged.
Oelwein, Ia.—Oelwein Daily Register, damaged.
Oskaloosa, Ia.—Building housing J. H. Wake Feed and Implement Co. destroyed.
Hiawatha, Kans.—Haroster Lumber Co.'s merchandise sheds in downtown section, destroyed.
Osawatomie, Kans.—Lumber yard of Osawatomie Lumber Co. damaged.
Ashland, Ky.—New Henry Clay Motel, nearing completion, damaged. Gas explosion.
Flemingsburg, Ky.—Fleming County Elementary School destroyed. Overheated furnace.
Pikeville, Ky.—Combination warehouse and apartment building destroyed.
Pikeville, Ky.—Johns Creek High School destroyed.

Smithland, Ky.—Two buildings housing Gardner Co. department store, J. D. Clopton & Son drug store, H. L. Harvey grocery, and office of Dr. E. L. Kennedy, damaged.
Dexter, Me.—Six-family apartment house on Park street, damaged.
Fort Kent, Me.—Garage owned by August O. Ouellette, destroyed.
North Sebago, Me.—Nine-room frame house, a barn, garage, automobile, owned by Warren Batchelder, destroyed.
Stillwater, Me.—Dwellings owned by Howard Stormann, Jr., and Mrs. Ida Shirland, destroyed.
Baltimore, Md.—Irvington Bowling Centre and six shops, destroyed.
Federalsburg, Md.—J. H. Noble Lumber Co. destroyed. Explosion.
Mt. Rainier, Md.—Warehouse Furniture Sales Co. damaged.
Violetville, Md.—Building of Trailmobile, Inc., destroyed. Explosions.
Boston, Mass.—Gerry's Furniture Co. and building of John Werrick, damaged.
Boston, Mass.—Long historic India Wharf, including Fulton Box Co. and Marks Dispatch Co., Diamond Motor Transportation Co., Buchanan Transport Co., all trucking concerns and machine shops, live lobster concern and some fish dealers' places, destroyed.
East Bridgewater, Mass.—Cattle barn and livestock of Resnick Bros., damaged.
Hull, Mass.—Paragon Park amusement center, Nantasket Beach, damaged.
Battle Creek, Mich.—Paper division of Post Cereals Co., destroyed. Children playing with matches.
Battle Creek, Mich.—Hamlin Box Shop garage destroyed. Flash gasoline explosion.
Marine City, Mich.—Colonial Hotel destroyed. Defective heating plant.
Appleton, Minn.—LeGrange Chevrolet Garage destroyed.
Lamberton, Minn.—Lamberton Produce, egg and poultry buying firm, destroyed.
Minneapolis, Minn.—Apartment building damaged.
Red Wing, Minn.—Building housing Johnson Tire Shop, and Hiawatha Valley Shoe Co. warehouse, destroyed.
Waseca, Minn.—Larson Jewelry Store destroyed.
Belton, Mo.—Owen-Good Ranch buildings, five miles southeast on U. S. 71, destroyed.
Elsberry, Mo.—Remodeled MFA Elevator, destroyed.
Wellston, Mo.—Bailey's Department Store, Singer Sewing Machine Store, Alfred F. Steiner Clothing Store and Turner's Factory Outlet Shoe Store in shopping district, damaged.
Billings, Mont.—Lyric Theatre destroyed.
Miles City, Mont.—Machine shop at nearby Fort Keogh, destroyed.
Roundup, Mont.—Bungalo Cafe destroyed.
Manchester, N. H.—Building on Elm street, housing local branch of Alcoholics Anonymous, Queen's Kiddy Center, Rogers Jewelry, The College Shop, Jordan's Luggage Co., Teber's Women's Clothing Firm, a vacant store, The Windsor store, Vernon Hat Shop, Alibi Sandwich Shop, Candlelight Gift Shop and S. & I. Army & Navy Store, destroyed.

Old Historic Fire Company Gets New Recruit

President Eisenhower became an honorary member on March 1 of the Friendship Fire Company of Alexandria, Va., reported organized by George Washington in 1774. Rep. Joel T. Broyhill, R., Va., Alexandria's Mayor; Marshall J. Beverley, and Robert F. Downhan, president of Friendship, presented Mr. Eisenhower with a membership certificate and an early fire fighter's helmet, together with a photograph of a fire engine which Washington is said to have bought for the Friendship Volunteer unit in 1775 for $400. The Nation's No. 1 Man reportedly was pleased with his No. 1 helmet—even if it didn't fit.


No lubrication necessary
Carbon bearings (oilless)
2 Piston-finished stainless steel shafts
Bronze housing (Oberdorfer alloy No. 741)
Bronze spur gears (Oberdorfer alloy No. 16438)

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OBERDORFER
BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

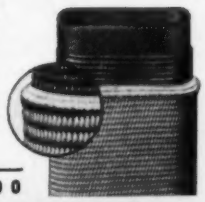
PERFORMANCE DATA—No. 26 and No. 13 PUMPS

Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

For the Very Best in Southern California

Contact Halprin for Quality Hose
Fire King—Highflex—Flexseal
B. F. Goodrich
Fire, Booster and Suction Hose
See B.F.G. Ad: Page 287, F.E.



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MODEL 20 SIRENLITE
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Siren sounds a penetrating warning, red light automatically flashes authority. Traffic opens instantly, day or night. FREE ROLLING feature.

STERLING SIRENS

- **HANDSOME**
- **RUGGED**
- **RELIABLE**

Built by proud craftsmen to the highest standards of precision manufacturing . . . utilizing materials of finest quality . . . Sterling Sirens give year-after-year of unsurpassed dependability and satisfaction.

MODEL M GENERAL FIRE ALARM SIREN
for Volunteer Systems

Quick acceleration, power-plus . . . Model M really gets the boys out in a hurry! Used by championship companies from coast to coast. A dependable, heavy-duty siren built of the finest materials throughout.

Complete line of Siren Equipment • *Bulletin on Request*

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New! AUDIO HAILER
WORLD'S MOST POWERFUL
All-in-One POWER MEGAPHONE

NOW IT'S AUDIO HAILER for long-range hailing with the POWER and CLARITY you need to be HEARD and UNDERSTOOD above noise and wind at great distances. Rugged, weatherproof, quality construction by AUDIO—originators of the Power Megaphone, suppliers to the U. S. Navy. *FREE literature.*

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DEALER INQUIRIES INVITED

AUDIO HAILER

AUDIO EQUIPMENT CO., INC.—GREAT NECK, N. Y.

Belleville, N. J.—The White House Laundry, damaged.
Oaklyn, N. J.—A. P. Davis furniture and appliance store destroyed.
Paterson, N. J.—Paterson Memorial Swimming Pool damaged.
Wyckoff, N. J.—Municipal building, including fire station and many town records, destroyed. Inadvertently started by volunteer firemen themselves.
Bethpage, N. Y.—Warren Kessler Glass Works factory damaged.
Brier Hill, N. Y.—Robert Bushnell general store and service station, destroyed.
Caroga Lake, N. Y.—The Unger House, resort Hotel on West Caroga Lake, destroyed.
Delhi, N. Y.—Buildings on Harold Clark farm, destroyed.
East Farmingdale, L. I., N. Y.—Uncle Zeke's Farmers' Market, Route 109, destroyed.
Endicott, N. Y.—Pine Inn at West Corners, destroyed.
Fair Haven, N. Y.—Building housing post office, grocery and tavern under construction in this Lake Ontario resort village, destroyed.
Fulton, N. Y.—Storage barn near Granby Center, destroyed.
Liberty, N. Y.—Dixie Lake Hotel, two miles out, destroyed.
Mattituck, N. Y.—Mattituck Bowling Alleys and Tavern destroyed.
Millerton, N. Y.—Building in Dutchess County town, housing the exchange of Copake Telephone Co., department store and several lawyers' and dentists' offices, destroyed.
Oswego, N. Y.—Two connected buildings housing Hollywood Restaurant, Lambrino's Dry Cleaners, Kraft Barber Shop, Criss Restaurant and The Peanut Grille, damaged.
Perinton, N. Y.—Barn owned by Jesse B. Hannan, destroyed. Electrical trouble.
Salamanca, N. Y.—Business building on Main street, housing shoe store, drug store, Sears Roebuck mail order store, restaurant, several professional offices and apartments, damaged.
Sandy Creek, N. Y.—Corse Press, Inc., building in heart of Oswego County village, damaged.
Sloatsburg, N. Y.—Factory building housing Schwartz Yarn Co. and Ramapo Piece Dye Works, destroyed.
Ticonderoga, N. Y.—Barn, two miles south, owned by William Kalker, destroyed.
Atlantic Beach, N. C.—Ocean King Hotel, together with several adjacent business buildings, destroyed.
Elizabethtown, N. C.—Green Bros. Lumber Co. and Bladen Tire Co., destroyed. Acetylene torch.
Fayetteville, N. C.—Wilson Barbour Lumber Co. destroyed. Spontaneous ignition.
Pikeville, N. C.—Yayne Medical and Surgical Supply Co. damaged.
Siloam, N. C.—First Methodist Church, 12 miles out, destroyed.
Cleveland, Ohio—Bloch's Dry Goods, De Lux Cleaners, Cafe Society Bar, Unger Bakery, damaged.
Clifton, Ohio—Building housing Arcade Luncheonette, Manse Film Library, Faulkner Foster Barber Shop and office of four building and loan associations, heavily damaged. Grease chute above grill.
Fairborn, Ohio—Eavey Co. supermarket destroyed.
Gnadenhutten, Ohio—Plant of Tusco Manufacturing Co., makers of utility tables and other pressed steel products, destroyed. Short in an overhead conveyor system.
Marietta, Ohio—Helby Building and Marietta Surplus Store destroyed.
Ottawa, Ohio—Frey Department Store damaged.
Paulding, Ohio—Sinn Sales & Service Co. farm machinery, destroyed; Veterans of Foreign Wars building heavily damaged. Electric light bulb exploded.
Ravenna, Ohio—Buildings on Ralph Richert farm operated by Greenbrier Poultry Farm, Route 88, damaged.
St. Mary's, Ohio—Howell Electric Co. building on U. S. Route 33, destroyed.
Newkirk, Okla.—Klofkorn furniture store destroyed.
Ashland, Ore.—Dixie Lumber Co. destroyed.
Brownsville, Ore.—Brownsville woolen mills destroyed.
Burns, Ore.—McAllister Co-operative Farm Store destroyed.
Forest Grove, Ore.—Haney Truck Lines destroyed. Defective wiring.
Portland, Ore.—Lind Hotel destroyed. Cigarette.
Portland, Ore.—Mountain View Inn, Mount Hood, destroyed. Short circuit.
Roseburg, Ore.—Conn Turkey Hatchery destroyed.
Salem, Ore.—Arrow Lumber Co. plant destroyed.
Abington Township, Pa.—Warehouse owned by Sunnybrook, Inc., near Limekiln Pike, North Hills, destroyed.
Bryn Mawr, Pa.—Mansion of Daniel R. Sabre at Fox Hills' Estate, destroyed.
Dauphin, Pa.—Jones Memorial Baptist Church, destroyed.
Drexel Hill, Pa.—Three store-apartment buildings at 3901-03-05 State Road, destroyed.

Lemoyne, Pa.—Farmers' Market building destroyed.
Painted Crossroads, Pa.—Greenhouse owned by Birmingham Co., a mile west of Concord Pike, damaged.
Philadelphia, Pa.—Building occupied by Sanders Chemical Co. destroyed. Sparks from torches.
Philadelphia, Pa.—Penn-Jersey Auto Store damaged.
Pittsburgh, Pa.—Federal cold storage plant damaged. Gas explosion.
Cheraw, S. C.—East wing of Cozier Container Corp. plant, destroyed.
Conway, S. C.—Maple Baptist Church and educational building, seven miles out, destroyed.
Rapid City, S. D.—Flight line maintenance and engineering building at Ellsworth Air Force Base, destroyed.
Knoxville, Tenn.—Building housing a paint store on Western avenue, destroyed.
Beaumont, Tex.—Finger Furniture Co. and Pace Piano Co. damaged.
Colorado City, Tex.—Oil well of Stanolind Oil & Gas Co. damaged.
Dallas, Tex.—J. C. Penney Co. store damaged.
Houston, Tex.—Building at 4001-4003 Westheimer road housing doctor's offices, dentist's offices and a substation of Burkhart's Laundry and Art Church Interiors, damaged.
Martinsville, Va.—Pythian Lodge building and Mick & Mack supermarket, in downtown, destroyed.
Mt. Jackson, Va.—The Nelson Theatre, five and ten cent store and appliance store, damaged.
Daisy, Wash.—General Merchandise Store destroyed.
Edison, Wash.—Camp Kirgy Lodge destroyed.
Marysville, Wash.—Weiser Lumber Co. destroyed.
Bluefield, W. Va.—Army Surplus Store, Southern Auto Store and Baldwin's Market, destroyed. Blank's Wallpaper and Paint Store and Clark's Furniture Store, damaged.
Menasha, Wis.—Chemical Supply Co. damaged. Spark.
Milwaukee, Wis.—Commercial ballroom in the National Headquarters of the Eagles, destroyed.
Peshtigo, Wis.—Warehouse and paint department building of Thompson Brothers Boat Mfg. Co., destroyed. Spontaneous ignition.
Sauk City, Wis.—Farm implement and supply store of Feuling & Son destroyed. Defective heating plant.
Strum, Wis.—Adjoining store of Ted Hulberg Grocery and Hans Jacobson Hardware, destroyed.
Vancouver, B. C.—Powell Valley Mills damaged. Explosion.
St. Stephen, N. B.—Garage operated by Provincial Government of New Brunswick destroyed. Fire started by a spark from an electric welding machine.
Nicolet, Que.—Thirty-five business-apartment buildings, destroyed.

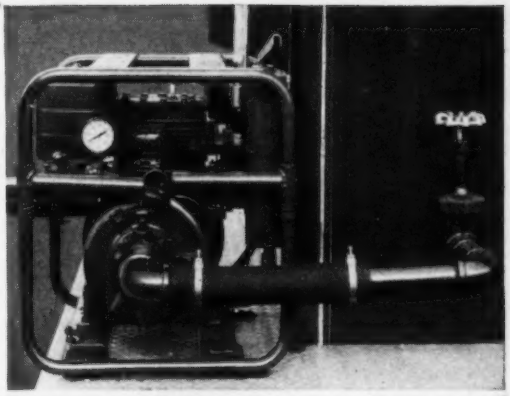
Pluck and Medical Science a Successful Combination

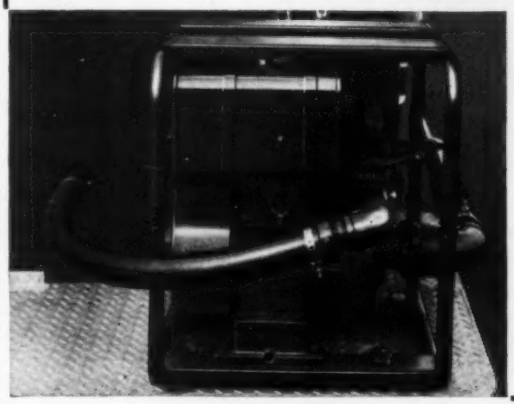
Living example that cancer is curable if discovered in time and treated promptly is Charles W. Hofmann (left), chief of the South Hadley Falls, Mass., Fire Department. His case is one of many cited by the American Cancer Society, which during April conducts its annual fund-raising drive, to prove that many cured cancer patients are able to resume normal, active lives. Chief Hofmann lost his voice when he was operated on for cancer of the larynx in 1949, but has learned to talk through a technique called esophageal speech and is still on the job as Chief. Here, he checks over equipment on the South Hadley Falls pumper with Deputy Chief Francis Moynahan.

HALE Type FZZ

Portable Unit Installed on Running board of Apparatus

Picture at right shows Hale FZZ portable pumping unit (from Suction Side) neatly installed on running board of pumper. Shut-off valve at right leading from Booster tank.





Below, view of FZZ from Discharge Side showing Discharge running into Booster line.

Pump can be easily detached to fight fire direct; as standby pump; or to supply larger pumper from source of water inaccessible to the pumper.

The FZZ will supply from draft 2 capable fire streams thru 1½" lines.

Performance substantially exceeds NBFU and NFPA cap. and pressure requirements.

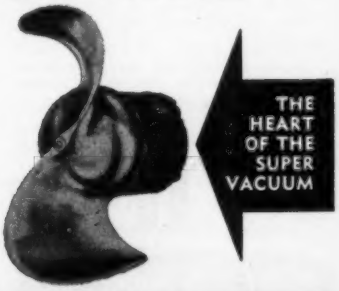
Write for FZZ folder today. Ask for Demonstration.

HALE FIRE PUMP CO. Conshohocken, Pa.

Fire Pumps in all Standard Capacities

Revolutionary New Principle Increases Fire-Fighting Efficiency!

●The Super Vacuum Smoke ejector is a powerful portable fan unit designed especially for fire departments. This design is a new and revolutionary principle in moving air. Several thousand Super Vacuum Smoke ejectors are in use throughout the United States and Canada. Controlled ventilation is new and very necessary in fire fighting. Years of service and satisfied users are your best guarantee for any merchandise.



THE HEART OF THE SUPER VACUUM

●The secret of Super Vacuum is the patented fan blade. Conventional fans chop the air and push it back. Whereas the Super Vacuum fan blade is a perfect spiral air screw which creates a partial vacuum, suction is created over the entire face of the blade and the air or smoke is discharged in a high velocity spiral. There are no dead spots—that is why Super Vacuum outperforms other fans twice its size.

Write for Additional Information or Contact Your Local Fire Equipment Dealer

MANUFACTURED EXCLUSIVELY BY

Super Vacuum MANUFACTURING CO.

319 East 17th Avenue • Denver 3, Colorado

SECONDS COUNT

when your life is at stake

Pocketaire

on the man and in action in only 7 seconds

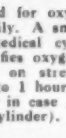
Compact, light, completely self-contained, Pocketaire breathing apparatus provides a modern approach to Fire Attack. Its use of oxygen, the only element in air essential to sustain life, involves a minimum of weight and bulk. A rebreather bag provides the needed "fill air".

"First-in" men, wearing a feather-weight 4½ pound Pocketaire, are protected against every breathing hazard by a 5 minute work cylinder and an escape cylinder which assures an additional 5 minute safety margin.

"Follow-up" men, using a 15 minute work cylinder, are also safeguarded by the 5 minute escape cylinder. Even this larger 6½ pound unit is sufficiently compact to permit free entry through small openings.

Recharged for just a few pennies from any standard oxygen cylinder, Pocketaire is an inexpensive, lifesaving, breathing apparatus.

Pocketaire . . . longer life for fire fighters



model #1500 $98.50 goggles and carrying case additional

NOW! NEW POCKETAIRE PORTABLE OXYGEN UNIT!

Any emergency need for oxygen can now be met quickly and easily. A small new inhalator with 2 standard medical cylinders and disposable mask simplifies oxygen therapy in inaccessible areas or on stretchers. At high flow rate, lasts up to 1 hour. Complete portable Pocketaire unit in case . . . **only $89.50** (including reserve cylinder).

THE CYCLE-FLO CO.

986 Bridgeport Ave., Milford, Conn.

Convention Dates

April 20—EGYPTIAN FIRE FIGHTERS ASSOCIATION. Quarterly meeting, Olney, Ill. Secretary, George Holmes, Carterville, Ill.

Apr. 24 — NEBRASKA REGIONAL FIRE SCHOOL. To be held at Loup City, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.

Apr. 25-29 — MINNESOTA STATE FIRE SCHOOL. Annual meeting, University of Minnesota, St. Paul, Minn. Co-Chairmen, J. O. Christianson, Superintendent, School of Agriculture, University of Minnesota, St. Paul, and Leonard C. Lund, Deputy Commissioner and State Fire Marshal, 570 State Office Building, St. Paul 1, Minn.

Apr. 25-29—INTERNATIONAL SEMINAR IN ARSON DETECTION AND INVESTIGATION. Annual meeting, Memorial Union Building, Purdue University, West Lafayette, Ind. For information regarding the seminar, write to Professor Shelby Gallien, Seminar Director, Public Safety Director, Purdue University, Lafayette, Ind.

Apr. 25-29 — OKLAHOMA STATE FIRE SCHOOL. Annual meeting, Oklahoma A. & M. College, Stillwater, Okla. Director, R. J. Douglas, Head, Fire Protection Department, Oklahoma A. & M. College Campus Fire Station, Stillwater, Okla.

Apr. 27-30—ARIZONA STATE FIREMEN'S ASSOCIATION. Annual meeting, Wickenburg, Ariz. For information, contact Chief Tony Boetto, Fire Headquarters, Wickenburg, Ariz.

May 1 — NEBRASKA REGIONAL FIRE SCHOOL. To be held at O'Neil, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.

May 9-10—GEORGIA STATE FIRE COLLEGE. Officer Training and Basic Course, Atlanta, Ga. Director, Harry Phillips, Director Vocational Service, State Department of Education, 642 Killian Street, Atlanta, Ga.

May 12-13—FIRE CHIEFS' TRAINING CONFERENCE. Annual meeting, Purdue University. For information, contact Francis Hartman, Chief of Fireman Training School, Public Safety Institute, Purdue University, Lafayette, Ind.

May 14—KEYSTONE STATE FIRE CHIEFS ASSOCIATION. Spring meeting, Tatamy Fire Station, Tatamy, Northampton County, Pa. Secretary, Lewis M. Atkinson, Malvern, Pa.

May 15—VERMONT STATE FIRE FIGHTERS TRAINING SCHOOL. Regional meeting, Brattleboro, Vt. Director, W. H. Adams, Secretary-Treasurer, State Fire Fighters Association, Vergennes, Vt.

May 15 — NEBRASKA REGIONAL FIRE SCHOOL. To be held at West Point, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.

May 16-20—NATIONAL FIRE PROTECTION ASSOCIATION. Annual meeting, Cincinnati, Ohio. General Manager, Percy Bugbee, 60 Batterymarch Street, Boston 10, Mass.

May 21—ILLINOIS FIRE CHIEFS ASSOCIATION. Summer conference, Jacksonville, Ill. Secretary, Chief Charles Bickler, 9 N. Spring St., Elgin, Ill.

May 22 — NEBRASKA REGIONAL FIRE SCHOOL. To be held at Tecumseh, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.

May 23-25—NORTH CAROLINA FIRE COLLEGE. Annual meeting, Charlotte, N. C. For information, contact the Director-Conductor, Chief Charles L. Burkett, Fire Headquarters, Salisbury, N. C.

May 23-25—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field in Marinette, Wis. For information, contact Director Fire School Ansul Chemical Company, Marinette, Wis.

May 23-27—CALIFORNIA FIRE SERVICE INSTRUCTORS CONFERENCE. Annual meeting, Fresno, Cal. Director, T. S. Ward, Supervisor of Fire Training, State Department of Education, Sacramento, Cal.

May 23 to June 24—FLORIDA STATE FIRE COLLEGE. First of two sessions, Ocala, Fla. Director, W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

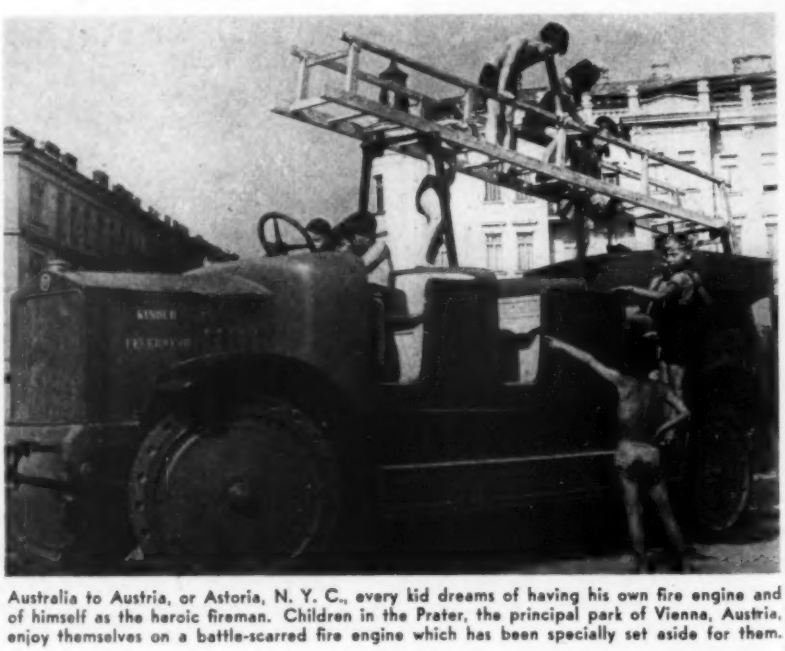
May 24-27—IOWA STATE FIRE SCHOOL. Annual meeting, Iowa State College, Ames, Ia. For information, contact Mark Brosier, Supervisor Firemanship Training, 110 Marston Hall, Ames, Ia.

May 29—NEBRASKA REGIONAL FIRE SCHOOL. To be held at Sutton, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.

May 29-31—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. Annual meeting, Clemson, S. C. President, Chief C. A. Fischer, Sr., Fire Headquarters, Orangeburg, S. C.

May 30-June 3—ALABAMA STATE FIRE SCHOOL. Annual meeting, University of Alabama, University, Ala. Director, M. O. Hulsey, Assistant State Supervisor of Trade and Industrial Education, P. O. Box 1813, University, Ala.

June 1 — NEBRASKA REGIONAL FIRE SCHOOL. To be held at Curtis, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.



Australia to Austria, or Astoria, N. Y. C., every kid dreams of having his own fire engine and of himself as the heroic fireman. Children in the Prater, the principal park of Vienna, Austria, enjoy themselves on a battle-scarred fire engine which has been specially set aside for them.

Convention Dates

June 1-3—EASTERN ASSOCIATION OF FIRE CHIEFS. Annual meeting, Asbury Park, N. J. Secretary, Edwin J. Clark, Box 217, Wayne, Pa.

June 5-7—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. Annual meeting, Schroon Manor on Schroon Lake, N. Y. Secretary-Treasurer, Ward A. Bohner, Fire Coordinator, Oneida County, Fire Headquarters, Utica, N. Y.

June 5-8—NEW MEXICO STATE FIREMEN'S ASSOCIATION. Annual meeting, Albuquerque, N. M. For information, contact Chief W. A. Westerfield, Fire Headquarters, Albuquerque, N. M.

June 6-7—GEORGIA STATE FIRE COLLEGE. Instructors' Course, Atlanta, Ga. Director, Harry Phillips, Director of Vocational Service, State Department of Education, 642 Killian Street, Atlanta, Ga.

June 6-10—CONNECTICUT FIRE COLLEGE. Annual meeting New Haven Fire Department Training Ground. Director, L. W. Eddy, Supervisor Service Training, State Department of Education, Box 2219, Hartford, Conn.

June 6-10—SOUTH DAKOTA STATE FIRE SCHOOL. Annual meeting, Deadwood, S. D. Director, Joseph I. Fetters, Administrative Assistant, University of Missouri, Columbia, Mo.

June 7-8—INDIANA FIRE DEPARTMENT INSTRUCTORS' CONFERENCE. Annual meeting, Indianapolis Fire Department Drill School. For information, contact Francis Hartman, Chief of Fireman Training School, Public Safety Institute, Purdue University, Lafayette, Ind.

June 7-9—KENTUCKY FIRE SCHOOL. Annual meeting, University of Kentucky, Lexington, Ky. Director, John L. Thompson, Assistant Manager, Kentucky Inspection Bureau, 940 Starks Building, Lexington, Ky.

June 8-11—COLORADO STATE FIREMEN'S ASSOCIATION. Annual meeting, fire school and tournament, Estes Park, Colo. Secretary, Deputy Chief Arthur J. Becker, 4250 Stuart Street, Denver 12, Colo.

June 9-10—MISSISSIPPI STATE FIREMEN'S ASSOCIATION. Annual meeting, Hattiesburg, Miss. Secretary-Treasurer, Chief E. J. Barksdale, Fire Headquarters, Hattiesburg, Miss.

June 9-11—IDAHO STATE FIRE SCHOOL. Annual meeting, Boise, Ida. For information, write W. F. Roach, Fire Marshal, Fire Prevention Bureau, Boise Fire Department, Boise, Ida.

June 9-11—NORTHERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION, INC. Annual meeting, Clayton, N. Y. Secretary, James J. Doyle, Jr., 12 Clinton Street, Potsdam, N. Y.

June 10-11—SOUTHWEST VIRGINIA FIREMEN'S ASSOCIATION. Annual meeting, Galax, Va. Secretary, B. C. Goad, Hillsville, Va.

June 12 — NEBRASKA REGIONAL FIRE SCHOOL. To be held at Ogallala, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.

June 12—VERMONT STATE FIRE FIGHTERS TRAINING SCHOOL. Regional meeting, Orleans, Vt. Director, W. H. Adams, Seretary-Treasurer, State Fire Fighters Association, Vergennes, Va.

June 13-15—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field in Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

June 13-16—ILLINOIS FIRE COLLEGE. Annual meeting, University of Illinois, Champaign-Urbana, Ill. Director, R. K. Newton, Supervisor of Fire Training, University Division of Extension, 725 S. Wright, Champaign, Ill.

June 14-16—SOUTHEASTERN ASSOCIATION OF FIRE CHIEFS. Annual meeting, Lexington, Ky. Secretary-Treasurer, Chief G. A. Mitchell, Fire Headquarters, Opelika, Ala.

June 15—NORTHWESTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Upper Sandusky, Ohio. Secretary, Earl Campbell, Box 164, Napoleon, Ohio.

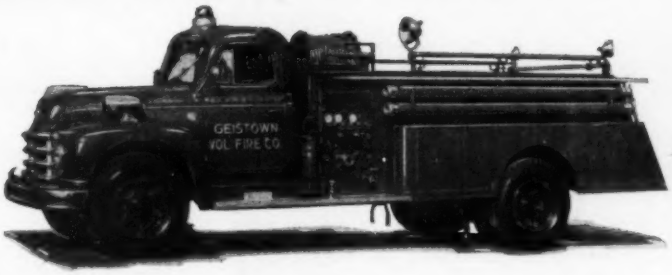
June 16-18—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Kingston, N. Y. Secretary, Charles M. Fales, 92 Clove Avenue, Haverstraw, N. Y.

June 16-18—UTAH FIREMEN'S TRAINING SCHOOL. Annual meeting, Salt Lake City, Utah. Director, Don E. White, Assistant Chief in Charge of Training, Salt Lake City Fire Department, 160 East First Street South, Salt Lake City, Utah.

June 18-19—OHIO REGIONAL FIRE SCHOOL. To be held at Lyndhurst, Ohio. Director, Walter T. Banning, 606 Fourth Street, N. W., New Philadelphia, Ohio.

June 19 — NEBRASKA REGIONAL FIRE SCHOOL. To be held at Chadron, Neb. Director, Otto B. Johannes, 2604 Twelfth Street, Columbus, Neb.

Champion Fire Apparatus



A highly efficient pumper apparatus with the Champion Three Stage Centrifugal Pump powered by Diamond T. The Pump is the Type SH750 which delivers 750 gallon Underwriter performance plus 60 gallons per minute at 850 lbs. for high pressure fog.

Or this Darley Apparatus is also available in Underwriter capacities of 1000 GPM and 500 GPM. Modern commercial truck motors have adequate power for either 1000, 750, 600 or 500 GPM pumps.

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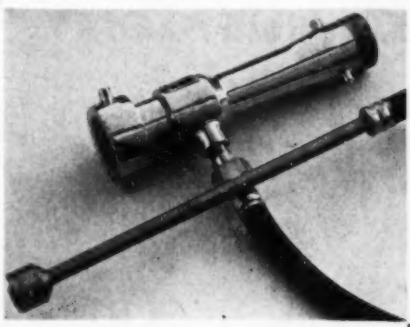
gives you either 1% or 2% UNOX Wetter Water



The new McFarland In-Line Proportioner now has the orifice in the pick-up tube attachment. A quick change of the tube gives you either 1% or 2% UNOX Wetter Water on your fire truck, in fixed systems or any fire-fighting line. UNOX is siphoned through the pick-up tube without pre-mixing. No need to put UNOX in truck tanks nor run it through pumps.

Coupled with a UNOX Emulsion Maker Nozzle on the line, here is the easiest, most economical way to extinguish Class A and B fires quickly and effectively.

Three sizes available—all made of chrome-plated cast brass:

MP-100 (1") for booster lines.
MP-150 (1½") operates on as much as 300 feet of hose.
MP-250 (2½") operates on as much as 400 feet of hose.

THE UNOX COMPANY

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A Division of McFARLAND MANUFACTURING CORPORATION

Oil Reservoir — Filled through pipe plug in bonnet — assures positive lubrication of stem threads.

Dry Top Design — Prevents freezing of stem threads.

"O" Ring Seals — Make permanent water-tight seal around stem.

Breech Locked Nozzles — Interlocking lugs prevent blowout.

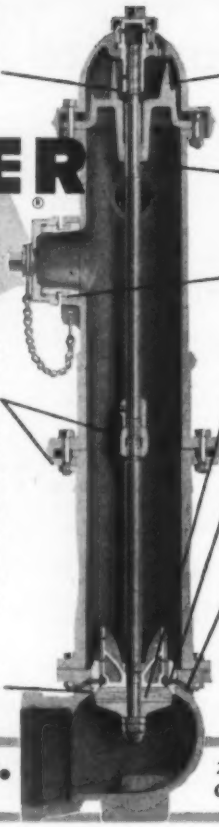
Compression-type Main Valve — Closes with water pressure.

Double Drain Valves — Integral part of main valve assembly.

Double Drain Openings — Force flushed each time hydrant is operated.

Safety Stem Coupling and Safety Flange — Coupling and flange break on impact, preventing damage to stem and barrel. Permits convenient facing of nozzles. Extension sections may be added or upper barrel may be changed from two-way to three-way hydrant without digging or water shut-off.

Bronze Seat Ring — Straight threads for easy removal.



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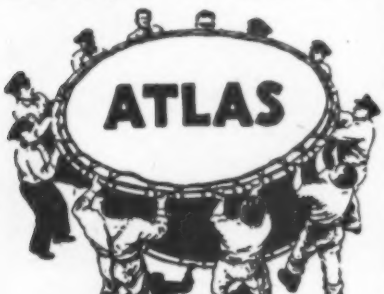

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in use in thousands of departments—time tried and proven—as the best and fastest means of rescue. All drop-forged hinges, with spring recoil mechanism like that on modern artillery. Specify ATLAS LIFE NETS on all new apparatus!

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Convention Dates

June 20-22—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field in Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

June 20-23—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. Annual meeting, Wentworth-by-the-Sea, Portsmouth, N. H. Secretary-Treasurer, John W. O'Hearn, 206 Mt. Auburn Street, Watertown, Mass.

June 20-23—NEW ENGLAND DIVISION, INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting, Wentworth Hotel, Portsmouth, N. H. Secretary-Treasurer, Chief A. H. Koltonski, Fire Headquarters, Rutland, Vt.

June 20-24—FIRE AND ARSON INVESTIGATION SHORT COURSE. To be held at the University of California, Berkeley, Cal. Director, T. S. Ward, Supervisor of Fire Training, State Department of Education, Sacramento, Cal.

June 20-25 — MISSISSIPPI STATE FIRE SCHOOL. Annual meeting, State College, Miss. Director, Joseph I. Fetters, Administrative Assistant, University of Missouri, Columbia, Mo.

June 22—CENTRAL WESTERN FIREMEN'S CONVENTION. Annual meeting, Eaton, Ohio. Secretary, Don Campbell, 613 N. Cherry Street, Eaton, Ohio.

June 23-24—SASKATCHEWAN ASSOCIATON OF FIRE CHIEFS. Annual meeting, Weyburn, Sask. For information, contact Chief, G. M. Beach, Weyburn, Sask., Fire Department.

June 27-29—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field in Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

June 27-July 1—FIRE AND ARSON INVESTIGATION SHORT COURSE. To be held at the University of California, Los Angeles, Cal. Director, T. S. Ward, Supervisor of Fire Training, State Department of Education, Sacramento, Cal.

July 10-15—TEXAS FIREMEN'S TRAINING SCHOOL. Annual meeting, Texas A & M College, College Station, Tex. Director, H. R. Brayton, Engineering Service, A. & M. College, College Station, Utah.

July 11-12—GEORGIA STATE FIRE COLLEGE. Arson Investigation Course, Atlanta, Ga. Director, Harry Phillips, Director Vocational Service, State Department of Education, 642 Killian Street, Atlanta, Ga.

July 11 to Aug. 12—FLORIDA STATE FIRE COLLEGE. Second of two sessions, Ocala, Fla. Director, W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

July 12-15—LOUISIANA STATE FIRE MARSHAL'S ARSON AND FIRE PREVENTION CONFERENCE. Annual meeting, New Orleans, La. For information, contact Sidney S. Bowman, Louisiana State Fire Marshal, New Orleans 16, La.

July 16-17—DELAWARE SHORT COURSE FOR FIREMEN. First session, Camden-Wyoming, Dela. Director, Frank M. Forstburg, Delaware State Board for Vocational Eduction, 511 West 8th Street, Wilmington, Dela.

July 17—VERMONT STATE FIRE FIGHTERS TRAINING SCHOOL. Regional meeting, Bennington Vt. Director, W. H. Adams, Secretary-Treasurer, State Fire Fighters Association, Vergennes, Vt.

July 18-20—ARKANSAS STATE FIRE DEPARTMENT INSTRUCTORS TRAINING SCHOOL. Annual meeting, Little Rock, Ark. Director, W. A. Turner, State Fire Instructor, State Education Building, Little Rock, Ark.

July 18-20—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field in Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

July 23-24—DELAWARE SHORT COURSE FOR FIREMEN. Second session, Camden-Wyoming, Dela. Director, Frank M. Forstburg, Delaware State Board for Vocational Education, 511 West 8th Street, Wilmington, Dela.

July 25-27—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field, Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

Convention Dates

July 25-29—WEST VIRGINIA STATE FIRE SCHOOL. Annual meeting, West Virginia University, Morgantown, W. Va. Director, R. E. Hanna, Jr., Supervisor, Fire Service Extension Schools, West Virginia Universtiy, Morgantown, W. Va.

July 26-28—CENTRAL MISSOURI FIRE CONFERENCE. Annual meeting, University of Missouri, Columbia, Mo. Director, J. I. Fetters, Room 101, Building T-11, University of Missouri, Columbia, Mo.

July 30-31—OHIO REGIONAL FIRE SCHOOL. To be held at Amherst, Ohio. Director, Walter T. Banning, 606 Fourth Street, N. W., New Philadelphia, Ohio.

Aug. 2-5—IOWA STATE FIRE INSPECTORS SCHOOL. Annual meeting, Iowa State College, Ames, Ia. Director, Mark H. Brosier, Supervisor of Firemanship Training, 110 Marston Hall, Iowa State College, Ames, Ia.

Aug. 7—VERMONT STATE FIRE FIGHTERS TRAINING SCHOOL. Regional meeting, St. Albans, Vt. Director, W. H. Adams, Secretary-Treasurer, State Fire Fighters Association, Vergennes, Vt.

Aug. 8-9—GEORGIA STATE FIRE COLLEGE. Engineers Course, Atlanta, Ga. Director, Harry Phillips, Director Vocational Service, State Department of Education, 642 Killian Street, Atlanta, Ga.

Aug. 11-13—CONNECTICUT STATE FIREMEN'S ASSOCIATION. Annual meeting, Bethel, Conn. For information, contact the Bethel Fire Department.

Aug. 15-17—WISCONSIN FIRE SCHOOL. Annual meeting, University of Wisconsin, Madison, Wisc. Director, J. J. Lichty, Coordinator, Business Institutes, University of Wisconsin, Box 2098, Madison, Wis.

Aug. 15-17—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field, Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

Aug. 18-20—OHIO FIRE CHIEFS ASSOCIATION. Annual meeting, Toledo, Ohio. General Chairman, Chief A. F. Papenhagen, 545 North Huron Street, Toledo 5, Ohio.

Aug. 22-24—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field, Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

Aug. 22-26—TENNESSEE STATE FIRE SERVICE SCHOOL. Annual meeting, Mid-Tennessee State College, Murfreesboro, Tenn. Director, Homer S. Elkins, State Fire Service Instructor, 120 Cordell Hull Building, Nashville, Tenn.

Aug. 24-27 — MONTANA STATE FIRE SCHOOL. Annual meeting, Polson, Mont. Director, Chief Clayton Brown, Fire Headquarters, Polson, Mont.

Aug. 28-30—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual meeting, Auburn, N. Y. Secretary-Treasurer, Robert E. Mills, 420 Plymouth Drive, Syracuse 6, N. Y.

Aug. 29-31—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field in Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

Sept. 5-6—GEORGIA STATE FIRE COLLEGE. Inspectors Fire Prevention Course, Atlanta, Ga. Director, Harry Phillips, Director Vocational Service, State Department of Education, 642 Killian Street, Atlanta, Ga.

Sept. 6-9—MARYLAND SHORT COURSE FOR FIREMEN. Annual meeting, University of Maryland, College Park, Md. Director, Robert C. Byrus, Director of Fire Service Extension, Box 85, University of Maryland, College Park, Md.

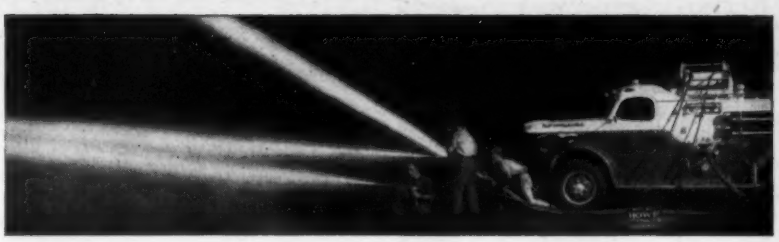
Sept. 9-10—NORTHEASTERN PENNSYLVANIA VOLUNTEER FIREMEN'S FEDERATION. Annual meeting, Peckville, Pa. Secretary, E. V. Coleman, Pleasant Avenue, Peckville, Pa.

Sept. 11-15—FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK. Annual meeting, Lake George, N. Y. For information contact the organization at the Hotel Martinique, Broadway at 32nd Street, New York 1, N. Y.

Sept. 12-14—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field, Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

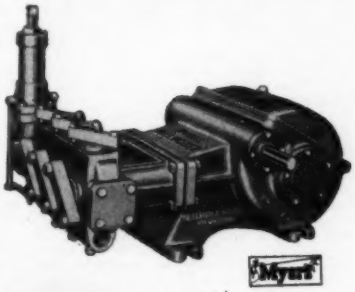
Sept. 12-15—CANADIAN ASSOCIATION OF FIRE CHIEFS. Annual meeting, on board C. S. L. "St. Lawrence." Secretary-Treasurer, Chief Allan H. Clark, Fire Headquarters, Lakefield, Ont.

Sept. 12-16—VIRGINIA STATE FIRE SCHOOL Annual meeting, Norfolk, Va. Director, Clay A. Easterly, Fire Marshal, P. O. Box 1112, Martinsville, Va.



Three Streams *at one time*

TWO HIGH-PRESSURE *and* ONE HIGH-CAPACITY



"Dual Fire Fighter" trucks, originated by Howe Fire Apparatus Co., mount a Myers Giant Bulldozer pump. It delivers 60 gpm. at a pressure of 800 psi. These high-pressure lines are backed up by a high-volume pump to make the right combination for fighting a wide variety of small fires.

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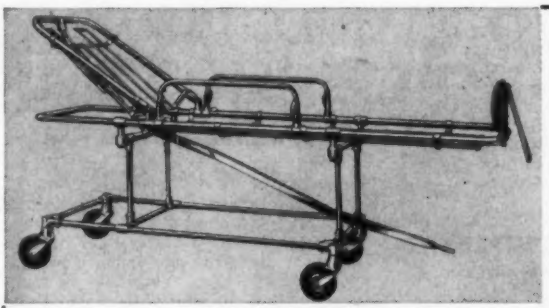
Myers **PUMPS**
WATER SYSTEMS AND WATER SOFTENERS

The F. E. Myers & Bro. Co. • Dept. FF-4, Ashland, Ohio



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ELEVATING STRETCHER COT

for handling any sick or injured patient. Elevated to its higher position, a patient can remain on the cot at a convenient height for the doctor and those administering medical aid.

This elevating cot is 12" from the floor to bed when it is in its lowered position. Quickly and easily elevates to 25" height. Fits into standard cot hooks and is regular cot size.

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WHEEL MODEL CHAIR
can easily be taken in close places.

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Helps Save
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FOR BREATHING EQUIPMENT
Cornelius
HIGH PRESSURE
AIR COMPRESSORS

Convention Dates

Sept. 12-16—OHIO FIRE STATE FIRE SCHOOL and OHIO STATE ARSON SCHOOL. Annual meeting, Ohio State University, Columbus, Ohio. For information, contact Wayne C. Jenkins, Assistant Director, 111 Wyandotte Building, 21 W. Broad Street, Columbus, Ohio.

Sept. 13-16—INDIANA STATE FIRE SCHOOL. Annual meeting, Purdue University, Lafayette, Ind. Director, Francis W. Hartman, Chief of Fireman Training, Purdue University, Lafayette, Ind.

Sept. 13-16—PACIFIC COAST INTER-MOUNTAIN ASSOCIATION OF FIRE CHIEFS. Annual meeting, Sun Valley, Ida. Secretary-Treasurer, Jay W. Stevens, Merchants Exchange Building, San Francisco, Cal.

September 18—GREAT LAKES ASSOCIATION OF FIRE CHIEFS. Annual meeting, Omaha, Neb. Secretary-Treasurer, Chief Elmer Stough, 605-4th Street, Lorain, Ohio.

Sept. 18-22—MISSOURI VALLEY ASSOCIATION OF FIRE CHIEFS. Annual meeting, Omaha, Neb. Secretary-Treasurer, Chief Ray Tiller, 319 East 5th Street, Waterloo, Ia.

Sept. 19-21—ANSUL FIRE SCHOOL. To be held at the Ansul Chemical Company's test field in Marinette, Wis. For information, contact Director Fire School, Ansul Chemical Company, Marinette, Wis.

Sept. 19-22—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting, Omaha, Neb. For further information contact Chief Daniel B. Tierney, Secretary-Treasurer, 8 Robbins Road, Arlington 74, Mass., or the Headquarters Office, Hotel Martinique, Broadway at 32nd Street, New York 1, N. Y.

October 11—MAINE ASSOCIATION OF FIRE CHIEFS. Annual meeting, Lewiston, Me. For information, Contact Chief Z. F. Drouin, Fire Headquarters, Lewiston, Me.

Oct. 17-19—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Grand Island, Neb. Secretary-Treasurer, Box 312, Schuyler, Neb.

Oct. 17-20—KANSAS FIRE SCHOOL. Annual meeting, University of Kansas, Lawrence, Kans. Director, Gerald Pearson, Director of Extension Classes, University of Kansas, 111 Fraser Hall, Lawrence, Kans.

Oct. 20-22 (tentative)—ARIZONA STATE FIRE TRAINING SCHOOL. Annual meeting, Phoenix, Ariz. Director, Harry C. Bigglestone, District Engineer, Board of Fire Underwriters of the Pacific, 405 Luhrs Building, Phoenix, Ariz.

Milwaukee Ballroom Fire

(*Continued from page 329*)

About 15,000 delegates and visitors to the Eagles Clubhouse are expected for the July convention and it may be necessary to shift the meeting elsewhere. The Eagles first national bowling tournament is scheduled to start at the Club early in April. The sum of $80,000 was recently spent for new alleys in preparation for the tournament. It is expected that the damage will not interfere with this gathering.

Acknowledgment: The editors are indebted to D. Rehm, Milwaukee, for details of this report; also to Fire Chief Edward Wischer.

Iowa Firemen Start Museum

The Belle Plaine, Iowa, Volunteer Fire Department, has set aside $225 of its department fund for a Belle Plaine Fire Fighting Equipment Museum.

According to Belle Plaine Fire Chief Earl Byers, what the company hopes to do is to "preserve for posterity the old Belle Plaine pumper in particular and other old fire fighting apparatus in general." Site of the museum will be the City park.

Plans call for raising funds to finance the housing facilities and additional historic equipment which the vamps hope to add to their collection.

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BADGES

SERVING THE FIRE FIELD
Since 1879

Firemen the world over rely on Braxmar for the finest badges money can buy. We offer the widest possible selection in nickel, chrome plate, sterling silver, gold plate, rolled gold and solid gold; all of our badges and insignia are the work of experts with a lifetime of service.

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Dealer inquiries invited.

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JOHN O. VEIT, *President* — JOHN O. VEIT, JR., *Secretary-Treasurer*
216 E. 45th Street, New York 17, N. Y.

News of the Manufacturers

(*Continued from page 340*)

discharged through strategically located heads distributed in the fire area.

Doors, windows, ventilation ducts, operating valves, etc. can be closed automatically by the system's nitrogen pressure. An electric switch energized when the system operates, turns off fans and machinery and sounds alarms around the plant or in a central fire alarm headquarters.

By using automatic selector valves, one piped system can protect two or more separate hazards. Dry chemical flows only into the piping that leads to the fire area involved.

The piped systems may be designed for either local application or total flooding.

Salesman Makes Life-Saving Demonstration:

Frank Bailey, Jr., of Milford, Conn., sales representative of the Cycle-Flo Company, makers of respiratory equipment, was making a routine call on the Orange, Conn., Police to demonstrate a new light weight self-contained respirator, when a call was received that an Orange woman had been stricken with a heart attack.

Police took Bailey and his respirator along and permitted him to use the product on the patient, who responded to treatment after five minutes application.

February Fire Losses

Estimated fire losses in the United States during February amounted to $85,046,000, the National Board of Fire Underwriters has reported.

According to Lewis A. Vincent, NBFU's general manager, this $85,046,000 loss represents an increase of 7.8 per cent from losses of $78,928,000 reported for February, 1954, and an increase of 13 per cent from losses of $75,265,000 for last January (1955).

These estimated insured losses include an allowance for uninsured and unreported losses.

Mock Brush Fire Staged for School Teachers

A mock brush fire was started and fought by members of the Los Angeles Fire Department's Mountain Patrol to emphasize fire prevention for 75 school teachers who teach safety in the city's elementary schools.

Battalion Chief Henry C. Sawyer, head of the patrol, directed firemen in demonstrating how they handle brush fires with patrol rigs, tank wagons and caterpillar tractors. The mock fire was held near Tank Patrol 2's quarters, 16500 Mulholland Drive.

Assistant Chief Marvin E. Meador told the teachers that Los Angeles enjoyed a decrease of 5000 fires during the past 12 months with a net reduction of $20,000,000 in fire insurance costs. This reduction, he said, is greater than the appropriation for departmental activities and can be credited to the Los Angeles Fire Department's pioneering work in fire prevention and house-to-house inspection programs.

PAUL DITZEL

Specify HALE

- Completely Modern
- Reliable
- Rugged
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- Conservatively Rated
- Sold thru Mfrs. of Quality Apparatus

VALUABLE TIME SAVED: While we have always emphasized *Reliability* of priming rather than *Speed* of priming, we cannot help taking pride in the results obtained in the test shown in this picture. PRIMING TIME (Water out the Nozzle) WAS BETTER THAN 18 SECONDS FOR THIS HALE QL PUMP ON A 22 FOOT LIFT! This was done at reasonable Engine speed in both series and parallel.

Minimum specifications require priming on a 10 ft. lift in 30 seconds. A substantial reserve on all HALE products is a consistent HALE policy.

• *Send today for QL Bulletin 334. HALE pumps are built in all standard capacities.*

HALE FIRE PUMP CO.
Conshohocken, Pa.

NEW CIRCLE-D 3 OUTLET CONNECTION BOX

PUTS POWER CONNECTION WHERE YOU NEED IT

Patented

CIRCLE-D Outlet Connection Boxes now make it possible to get more light on the scene with less wire. For portable lighting and other electrical equipment, CIRCLE-D Outlet Connection Boxes provide extra power outlets on a single power line from the generator. Completely weather-proof, CIRCLE-D Connection Boxes are equipped with three 20-A Wire Twist Lock receptacles which hold power cords tight so that they can't be kicked or pulled loose while in use. Unused outlets are protected from the elements with weather-proof rubber closure plugs. Made of heavy duty cast aluminum, boxes are equipped with a 17" #14 gauge 2 wire pigtail cord with seal tight boot for fast, easy connection to main power line.

For further information, ask your Fire Equipment Distributor, or write

NATALE MACHINE & TOOL CO. 339 HIGHWAY #17 Carlstadt, New Jersey

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. . . and How to Overcome Them!

As a practical help to anyone who is confronted with the problem of hazardous gases, mists, fumes, smokes and dusts, ACME offers this valuable Protection Guide. It lists 433 of these hazards along with the ACME Gas Mask Equipment designed to give you dependable protection in each specific case. This vital information is available exclusively through ACME. Write for your copy today.

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GAS MASK

with "Picture Windows"

You never have that "horse-blinder" feeling with the ACME Full-Vision Gas Mask. Its patented larger lenses provide full, natural vision with greater comfort along with protection you can rely on. Other ACME features include easier breathing, less fogging, and increased audibility. There's an ACME Mask to provide the right protection for every hazard such as those listed in the Protection Guide. Write for Bulletins 541 and 542 describing ACME canister gas mask equipment.

ACME PROTECTION EQUIPMENT COMPANY
1215 Kalamazoo Street
South Haven, Mich.

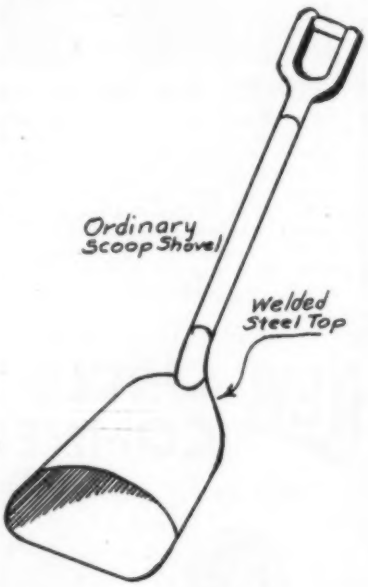
Short Cuts and Gadgets

SCOOP IS HANDY SALVAGE TOOL

The problem of removing excess water from structures damaged by fire has long had the attention of salvage experts. One of the most handy 'tools' for this purpose is a water-scoop, like the one pictured.

In earlier days these scoops were of wood but although they were light and easy to handle, they didn't stand up under severe usage as did the metal ones.

A problem with the latter was in buying them. There weren't—and aren't—many known manufacturers of this particular device.



One way to get around that problem was devised by the Long Beach, Calif., Fire Department, Chief Frank Sandeman. The boys went to work and made their own metal water-scoop, like that pictured.

"This is just an ordinary scoop shovel," writes Chief Sandeman, "with a welded sheet steel cover, open at one end for scooping up the water."

Thank you, Chief Sandeman. This contribution should be particularly interesting to those who are going to scrutinize the series of studies on overhaul and salvage, which began in the March issue of FIRE ENGINEERING.

* * *

The Old Timer Says—

It's a little thing, but how many fire departments carry a good supply of salt or sand to spread at entranceways, at the foot of ladders, and around pumpers during a serious working fire in below freezing weather? How many know where and how to get salt, sand, ashes, or any old thing that will perhaps save a guy a broken leg or busted head by preventing slips, slides and falls? Oh sure; call the street department. But a chief hasn't much time to think of all these details when he's workin' and worryin' at a serious fire. And after midnight, say, where's the street department gonna get the rig, the driver, the non-skid stuff and the men to spread it?

This problem is more serious in the small town where such details are not included in local fire fighting strategy.

But even there, it can be handled. There's no excuse for a fire headquarters not knowing where, and how to get the stuff, and for someone in the department (or police) makin' it his business to go get it when the need occurs.

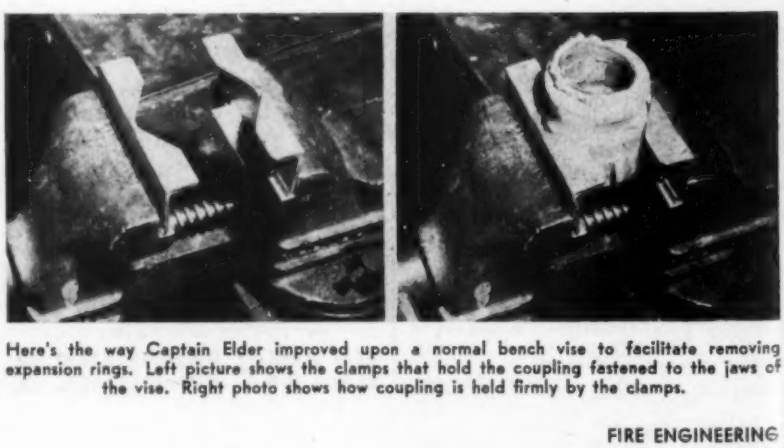
* * *

HOSE COUPLING VISE SPEEDS REMOVAL OF EXPANSION RINGS

From Captain J. W. Elder, Arcadia, Calif., Fire Department, comes this idea for a simple "home made" hose coupling vise.

To quote Captain Elder: "It will hold most any size coupling male or female secure, while removing the old expansion ring without damage to the coupling."

"Simply remove the jaws of the standard bench vise and insert coupling clamps with holes drilled to match the vise. The expansion ring can be moved in a matter of seconds by forcing a



Here's the way Captain Elder improved upon a normal bench vise to facilitate removing expansion rings. Left picture shows the clamps that hold the coupling fastened to the jaws of the vise. Right photo shows how coupling is held firmly by the clamps.

"I recommend BI-KLEEN for the FIRE HOUSE as well as FIRE HOSE!"

For cleaner, longer-lasting fire hose

This statement was made recently by a prominent fire chief because *Bi-Kleen* is not only the ideal cleaning and protection agent for all cotton rubber-lined hose, but it also does an amazingly fast and efficient job of cleaning oil, dirt and grease from the floor—even rough cement floors. Fire hose racks and truck beds need a good cleaning compound, too—and *Bi-Kleen* does a perfect job—keeps equipment "inspection clean" *all* the time with less scrubbing!

Order the inexpensive trial size today! You'll discover safe, non-toxic *Bi-Kleen* will save hose, save work, save money. Sold by the makers of the finest fire hose in the world—Bi-Lateral, flat-folding, non-creasing fire hose.

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BADGES by Everson-Ross

One of the oldest and always — one of the best!

Do you have our latest circular of Fire Badges? It's yours for the asking.

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WHAT'S YOUR GADGET?

At some time in his career almost every fireman has devised a "short cut" or a "gadget"—or both, for doing a job better, more quickly, cheaply or conveniently. It may be an operation like a formula for figuring back pressure or a finished product like an improved plaster hook—it doesn't matter what it is; if it will contribute to the advancement of fire fighting FIRE ENGINEERING wants it—and will pay for it at the rate of $1.00 for an idea without illustration and $5.00 where usable sketches or photographs are furnished. Address Editor "Short Cuts and Gadgets," FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

heavy metal screw driver down between the ring and the rubber lining of the hose and prying the ring up and out."

The Captain submits the accompanying photographs to further explain his "gadget."

Thank you Captain Elder!

* * *

SMYRNA HAS "OVERHEAD ARM" TO FACILITATE LOADING TANKS

This isn't the first instance of its kind, but it shows the resourcefulness of the volunteers.

Smyrna, Del., firemen have been quite successful in using milk tanks as water carriers in fighting rural fires. When the tanks were available, it became necessary to have a proper gadget to fill them rapidly.

The Smyrna Garage, as a community service, installed an 'overhead arm' (in the form of a movable discharge pipe) at the Senger Transportation Company property — where the milk trucks are stationed—that does the trick.

Long Beach Firemen Get Shipboard Fire Scare

Wisps of smoke coming from a partially filled hold containing steel shavings brought an abrupt end to loading operations aboard the British Freighter Lord Gladstone, while Long Beach, Calif., firemen investigated.

After a two-hour standby, the smoke grew no worse and fire inspectors together with insurance company representatives decided that the smoke was caused by oil vapors and ordered loading operations resumed.

The consignment of 9500 tons of shavings came from machine shops and frequently are oily. Firemen said the heat from compression, as the hold was filled, might have started the oil smouldering or perhaps an oily rag might accidentally have been dropped into the hold.

PAUL DITZEL

BUILT Rugged... Built to PUMP!

LEONARD Rotary Gear PUMP

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Easy to install, rugged and sturdy to the extreme! Leonard pumps are guaranteed. Deliver 150 GPM at 150 pounds.

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New "PAY-by-the-LESSON" Plan!
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Rated and returned with individual comments and constructive criticism by examiners.

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CORRESPONDENCE SCHOOL
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OVER 80% of N. Y. City's Firemen are Delehanty-Trained

when heat is intense

Use ISSCO's heat-reflecting aluminized asbestos hood and gloves. Gives you that extra protection around face and hands in approaching fire and in flash-backs. Hood has built-in helmet—adjustable to size: 1/4" laminated safety glass window.

Gloves shown are ISSCO 114-AL (One of many styles we furnish).

Write for literature describing aluminized asbestos protective clothing.

INDUSTRIAL SAFETY SPECIALTIES COMPANY
8th and Chestnut Sts., Perkasie, Pennsylvania

Manufacturers of
The ISSCO Aluminized Asbestos Turnout Coats
Asbestos blankets in all sizes

Protective clothing for every situation!

Chemical Blaze

(*Continued from page* 319)

Ladders, 5
Rescue, 1
Chemical Units, 3 (SS-100; Chem. 1-3)
Hospital Unit, 1
Light Wagon, 1
Communications Unit, 1 (Car 500)
Gasoline Tanker, 1
Pick-up Truck, 1
Chiefs' Cars, 10

Partial Equipment Used

Deck guns, 5.
Deluge guns, 9 (5 solid streams, 5-500 G.P.M. Fog Streams).
Play-pipes, 2 (Deluge sets).
Hand-Lines, 2 (in Mechanical Holders).
Hose used: 800 ft. 3½-in.; 15,050 ft. 2½-in.; 550 ft. 1½-in.
Foam used: 1,025 gal. liquid, by Fire Department.
Foam used by Plant: 57,150 lbs. foam powder; 6,390 gals. liquid.
Foam Lines, 1 Chemical; 8 liquid.
Water displaced: 11,000,000 gals. (includes gallonage supplied plant pumps through City mains).

Personnel Engaged, Fire Department

Chief Officers, 23; Company Officers, 43; Firemen, 293. Note: Many off-duty Chief and Company Officers and Company personnel reported to the fire ground to assist where needed. Chief Hink formally recognized this unselfish cooperation at a meeting of Chief Officers following the fire.

In addition to Commissioner Frank L. McNamee, Deputy Commissioner and Chief Engineer George E. Hink, and other Fire Department officials, there were present: Commissioner Samuel Baxter, Water Department with Deputies Barofsky, Arnold and Engineer Reich, and three Emergency Crews; Commissioner Thomas Gibbons, Police Department, with Deputy Commissioner Albert DuBois and Chief Inspector Trimmer; also two inspectors, one Lieutenant, and 50 Patrolmen. The Medical Division was represented by Chief Surgeon Dr. Saverio Brunetti and Assistants Carraciola, Leiberman and Carideo. Also present was Commissioner Randolph S. Wise, of the Welfare Department.

Hazardous Occupancy

There have been numerous explosions and fires at the Barrett Plant.

The most recent blast ocurred a year ago, March 10, 1954, at 2:30 A.M. It tore apart a chemical pipeline, shook an area of eight square miles, blew out windows of nearby homes and tossed furniture around.

On April 4, 1953, nine firemen were hurt and a score affected by smoke in a six-alarm fire that followed a pipeline explosion at the plant.

A two-story brick warehouse was destroyed in a three-alarm fire on September 13, 1950.

Two Barrett workers were killed and four others burned in a blast on November 12, 1949.

An explosion was followed by a 7-alarm fire on April 21, 1946, in which six persons were injured and 40 families nearby driven from their homes.

In a fire on April 14, 1944, a woman

McINTIRE GATE VALVES

Fig. 164AN
4½" swivel female x two 2½" male Gated Siamese. Quick opening, ¼ turn valves.

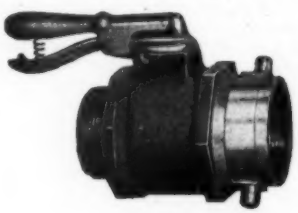

Fig. 163
Made either Right Hand or Left Hand 2½" male x female, gate valve.

F. N. McINTIRE BRASS WORKS
377 PUTNAM AVE., CAMBRIDGE 39, MASS.
1837 - - - - - - - - - 1955

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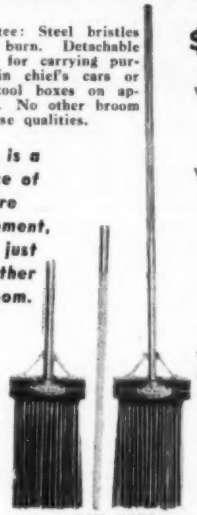
"THE KING"
Fire Fighting Broom

Buy a sample for $3.00 and convince yourself. You will never buy any other broom. It has many uses.

Guarantee: Steel bristles cannot burn. Detachable handle, for carrying purposes in chief's cars or small tool boxes on apparatus. No other broom has these qualities.

This is a piece of fire equipment, not just another broom.



$34.00 per dozen

We prepay delivery costs.

Will outlast any other broom for fire fighting.

If you are not satisfied with sample return same and money will be refunded.

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FIRE & POLICE MFG. Corp.
24-20 BRIDGE PLAZA SO.
LONG ISLAND CITY 1, N. Y.

WHY *Janesville* IS FIRST

CHECK THE FEATURES . . .
that firemen want and get in JANESVILLE turn out suits.

Detachable wool or flannel lining — you get DOUBLE PROTECTION against searing heat...freezing cold . . . rugged wear. And they are easily changed to fit working conditions.

Examine the other details of our fire coats and you'll see why the label JANESVILLE stands for quality, protection, comfort and lasting service.

- Finest Material
- Rugged Construction
- Custom-built . . . coats available in any length wanted. Also sleeve lengths.

Janesville APPAREL CO.
JANESVILLE, WISCONSIN

employe was killed and three others were injured seriously when a container of acid exploded in the plant's laboratory.

A three-alarm fire on April 17, 1938, drive hundreds of residents from their homes and caused the death of one man from burns, less serious burns to 19 others and extensive property damage.

Overhaul and Salvage

(*Continued from page 323*)

let anything drop to the street, yard or roofs of neighboring structures, unless it is absolutely necessary, and then, only after giving warning to those below.

In removing a cornice, every effort should be made to pull it back on the roof. If necessary to drop it to the street, it should be tied with a roof rope, then lowered after due warning has been given.

A sharp lookout should be kept for glass skylights, floor openings, shafts, etc. Men should be warned to exercise care where such openings exist. Where possible, they should be covered or barricaded.

Before glass skylights or scuttles are broken, warning should be given to those who may be operating below. Crews conducting overhaul should make it a point not to remain or work under such coverings any longer than is necessary.

Except when necessary to instruct a member of the department, or under extreme manpower shortage, officers should not use tools at fires, or in performing any overhaul. To quote one metropolitan department: "The officer is there to do the thinking, and to give orders, not to do the work. If the officer makes a practice of doing this kind of work, he will find his men will get into the habit of relying on him to do his part at operations, thereby shirking their own duty."

Flames Destroy Three California Plants

A lunch-hour blaze in an industrial district near Los Angeles, Calif., wrecked three small factories and caused an estimated $270,000 in damage.

Six companies from the Los Angeles County Fire Department battled the flames for more than an hour. Assistant Chief George Bartling said he believed the fire spread from open burning of trash near the B. G. Manufacturing Co. and the Master Iron Foundry.

The foundry was a one-story frame and metal structure in the center of a cluster of three buildings. Bernard Shiffler, owner, estimated his loss at $65,000 and said valuable patterns were lost in the blaze.

Fred Bahl, owner of the B.G. Company, makers of small metal parts, estimated his damage at $55,000. The plant consisted of an office and a one-story concrete block building behind it where four persons were working. Both structures were burned out.

The heaviest loss occurred at the Canady & Hudson Commercial Machine Works, 1940 E. 65th St., where the flames gutted the one-story frame building. Owner Guy Canady said his shop made small parts for the aircraft industry and he esitmated damage at $150,000.

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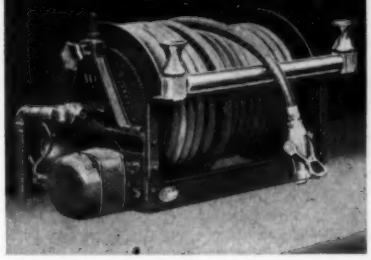

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Dry Chemical Extinguishers Have Interesting History

(*Continued from page 333*)

of the fuel could be stopped most effectively. The most recent theory is that the extinguishing action is largely due to "chain-breaking".

It is known that combustion of gases and vapors proceeds in a chain reaction and that combustion will cease if the chain of oxidation is interrupted.[1, 2, 3, 4, 5] The chain may be broken by the free radicals coming in contact with cold surfaces or by diluting the mixture of air and gas. It is evident that the discharge of dry chemical into the flame area could provide the necessary cold surface and that the decomposition of the sodium bicarbonate to give off water vapor and carbon dioxide could cause dilution at the flame interface.

The branched-chain reaction of hydrogen and oxygen is relatively simple and has been the most thoroughly studied. The combustion of hydrocarbon vapors involves not only chain reactions but also cracking and reforming of the molecules to produce complex high molecular weight compounds. Practically, this can be readily proved by running a series of fires in kerosene with repeated extinguishment by water spray. The kerosene soon shows by fluorescence that high molecular weight aromatic molecules have been formed.

There are some unanswered problems. Dry chemical is approximately twice as effective as carbon dioxide on hydrocarbon fires,[6] including methane. However, there are very strong indications that carbon dioxide and dry chemical are equally effective on hydrogen and carbon monoxide fires. At the present, we do not know why this is so, if chain

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reaction interruption is a prime factor in extinguishment.

Dry chemical is becoming increasingly used on Class "A" fires, especially fires in textile fibers such as cotton. However, it serves primarily to obtain very rapid control of the fire. The flames are almost immediately extinguished but the Class "A" material may still smolder. It is always desirable to have water available for final extinguishment, whenever possible, although larger quantities of dry chemical may be used for complete extinguishment when water is not available.

In summary, the development of dry chemical extinguishment is best shown by reference to the annual Factory Mutual Laboratories' ratings by the areas of burning gasoline which can be expected to be extinguished by inexperienced operators. In 1942, a 20 pound dry chemical extinguisher would have been rated 5½ square feet compared with the 7 square foot rating for a 20 pound carbon dioxide extinguisher. The improvement in the dry chemical, made in 1943, increased this area to 9 square feet (the same rating as carbon dioxide extinguishers) and the improvement in the method of application on the fire increased this again in 1947 to 12½ square feet.

It is expected that with the large number of manufacturers now interested in dry chemical fire extinguishing equipment there will be considerable development and improvement within the next few years. The present reclassification program of the Underwriters' Laboratories, Inc.,[7] which is expected to be completed in about one year, will undoubtedly accelerate this activity. The purchaser of fire equipment should benefit directly.

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January Fire Loss

Estimated fire losses in the United States during January amounted to $75,265,000, the National Board of Fire Underwriters has reported.

According to Lewis A. Vincent, NBFU's general manager, this $75,265,000 loss represents a decrease of 13.0 per cent from losses of $86,493,000 reported for January, 1954, and a decrease of 10.3 per cent from losses of $83,881,000 for last December (1954).

These estimated insured losses include an allowance for uninsured and unreported losses.

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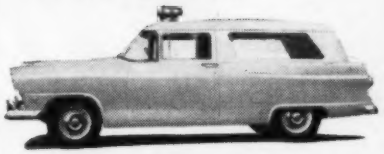

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APRIL, 1955

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